

2002 LEVEL OF SERVICE MONITORING

FOR THE

ALAMEDA COUNTY CONGESTION MANAGEMENT AGENCY

PREPARED FOR:



ALAMEDA COUNTY
CONGESTION MANAGEMENT AGENCY

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NOVEMBER, 2002

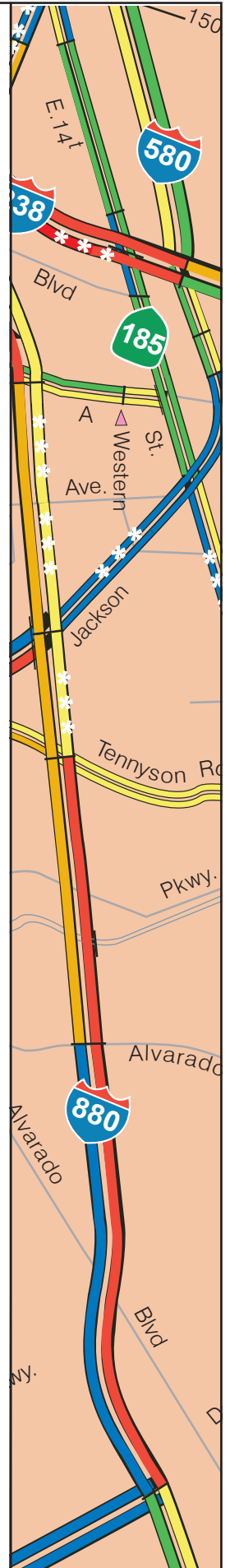


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SUMMARY

This report presents the results of the travel time and speed surveys for the Alameda County Congestion Management Program (CMP) network for the year 2002. The results indicate that overall traffic conditions and the severity of traffic congestion have generally remained stable since the 2000 studies, although there are specific locations where some notable changes have occurred. The survey program included the following elements:

- “Floating car” travel time surveys on all Alameda County freeways (88 survey segments) and designated CMP arterial roads (201 survey segments) during the 4:00 to 6:00 P.M. peak period.
- Travel time surveys on selected ramp movements and “special segments” (23 survey segments) during the P.M. peak period.
- Travel time surveys on selected freeway segments (55 survey segments) during the 7:00 to 9:00 A.M. peak period.
- Travel time surveys using both auto and transit travel between ten pairs of origins and destinations and the across the three bridges in Alameda County.
- Studies of Saturday capacity conditions using data provided by Caltrans.
- Bicycle Counts at selected intersections using count data supplied by the local agencies.

The following table lists the locations of figures in this report which illustrate the levels of service on each road segment in each area of the county.

Figure	Area	LOS	Time Period	Page
2	Countywide	“F” Only	A.M. and P.M.	16
3	Countywide	All	A.M. Peak Hour	23
4	Northern	All	P.M. Peak Hour	27
5	Upper Central	All	P.M. Peak Hour	28
6	Lower Central	All	P.M. Peak Hour	29
7	Southeastern	All	P.M. Peak Hour	30

SYSTEM PERFORMANCE

Overall Average Speed

For the County as a whole, the 2002 speeds are generally consistent with 2000 Level of Service (LOS) monitoring. The overall average speed is almost identical to the 2000 results. The overall average speeds on the freeway system increased by 0.2 miles per hour between 2000 and 2002, while the average arterial speeds decreased by 0.4 miles per hour. There appears to be an improvement in speeds on certain routes (e.g. I-680 in the Sunol area) that could be attributed to the downturn in the DOT.com economic environment. However, there are other routes such as I-580 in the Pleasanton-Livermore area that have much slower speeds, suggesting that there is a continuing growth in the traffic volumes in this corridor. Over this two year period, there are no overall trends that can be readily identified.

LEVEL OF SERVICE “F” SEGMENTS

The 2002 surveys revealed that twenty-two (22) segments are operating at Level of Service “F” during the P.M. peak period. Of these segments, sixteen (16) are on the freeway system, four (4) are located on arterial routes, and two (2) segments are on freeway-to-freeway ramps. In addition, fourteen (14) segments operated at LOS “F” during the A.M. peak period surveys. This is an increase in the number of segments in both the A.M. and P.M. in comparison to 2000.

First time LOS “F” Segments

A total of five (5), three (3) freeway segments and two (2) arterial segments, operated at LOS “F” during the P.M. peak period for the first time in 2002.

- Unincorporated Alameda County, I-580 eastbound from Santa Rita Road to Portola Avenue
- Livermore, I-580 eastbound from Portola Avenue to SH 84/1st
- Fremont/Union City, I-880 northbound from Decoto Road to Alvarado-Niles Road
- Oakland, SR 123/San Pablo northbound from 53rd Street to Stanford Avenue
- Unincorporated Alameda County, SR 84 eastbound¹ from Pleasanton/Sunol Road to the Vallecitos Nuclear Center entrance

LOS “F” Segments Not in 1991 CMP Baseline (Not “Grandfathered”)

Five (5) segments operated at LOS “F” in 2002 during the P.M. peak period that had been reported at LOS “F” in one or more previous surveys, but were not LOS “F” when the CMP baseline conditions were set in 1991 (and therefore were not “grandfathered”):

- Oakland, I-80 eastbound from the Toll Plaza to I-580
- Unincorporated Alameda County/San Leandro, I-238 westbound from I-580 to I-880
- Pleasanton, I-580 eastbound from I-680 to Santa Rita Road
- Union City/Hayward, I-880 northbound from Alvarado-Niles Road to Tennyson Road

¹ This segment was part of a larger segment that, at the request of the City of Pleasanton, was divided into three parts.

- Unincorporated Alameda County/Hayward, SR 92 eastbound from the San Mateo County line to the toll gate

LOS “F” Segments Included in 1991 CMP Baseline (“Grandfathered”)

The remaining twelve (12) segments operated at LOS “F” during the 2002 P.M. peak period and also were at LOS “F” during the 1991 CMP baseline year (and are therefore grandfathered).

- Emeryville/Berkeley, I-80 eastbound from I-580 to University Avenue
- Berkeley/Albany, I-80 eastbound from University Avenue to Central Avenue
- Emeryville/Berkeley, I-80 westbound from University Avenue to I-580 split
- Unincorporated Alameda County/San Leandro, I-238 eastbound from I-880 to I-580
- Unincorporated Alameda County/Hayward, I-880 southbound from I-238 to A Street
- Oakland, SR 24 eastbound from I-580 On Ramp to Fish Ranch
- Unincorporated Alameda County/Hayward, SR 92 eastbound from the toll gate to Clawiter Road
- Hayward, SR 92 eastbound from Clawiter Road to I-880
- Oakland, I-80/I-580 Interchange from I-80 southbound to I-580 eastbound
- Union City, Decoto Road westbound from Union Square to Alvarado-Niles Road
- Fremont, SR 84/Fremont Boulevard westbound from Peralta to Thornton
- Oakland, SR 13/SR 24 Interchange from SR 13 northbound to SR 24 eastbound

LOS “F” Segments in A.M. Peak Period

The A.M. peak period travel time surveys were conducted on selected freeway segments only, and include only a portion of the major roads in Alameda County. During the 2002 surveys A.M. peak period data was collected for an expanded number of routes; the surveys were expanded to include about 90 miles of travel time surveys for a total of 55 segments (up from 22 segments in previous surveys). A number of new locations are operating at LOS “F”. Fourteen (14) segments in all were measured at LOS “F”. Six of these segments were previously measured at LOS “F”. Eight new segments that had not been previously measured were also at LOS “F”.

- Albany/Berkeley, I-80 westbound from Central Avenue to University Avenue
- Oakland, I-80 westbound from the I-80/I-580 Split to the toll plaza
- Oakland, I-80 westbound from the toll plaza to the San Francisco County line
- Unincorporated Alameda County/San Leandro, I-238 westbound from I-580/SR 238 to I-880
- Unincorporated Alameda County, I-580 westbound from Center Street to I-580/I-238
- Oakland, I-580 northbound from SR 24 to I-80/I-580 Split
- Unincorporated Alameda County, I-680 southbound from SR 84 to SR 238/Mission
- Fremont, I-680 southbound from SR 238/Mission Boulevard to Scott Creek
- Hayward, I-880 southbound from A Street to SR 92
- Oakland, SR 24 eastbound from I-580 On Ramp to Fish Ranch
- Newark, SR 84 westbound from I-880 to the toll gate
- Hayward, SR 92 westbound from I-880 to Clawiter Road

- Alameda County/Hayward, SR 92 westbound from Clawiter to toll gate
- Alameda County/Hayward, SR 92 westbound from the toll gate to the San Mateo County line

The freeway segments with the most congested A.M. traffic conditions are I-80 on the approaches to the Bay Bridge, I-238 in Hayward, I-580 in Castro Valley, I-680 at the Sunol Grade, SR 24 (Caldecott Tunnel) in the off-peak direction, and SR 92 westbound at the San Mateo Bridge.

IMPROVED SEGMENTS

Table 1 list twelve segments that operated at LOS “F” during the 2000 surveys but operated at an improved Level of Service in the 2002 surveys. Improvements on I-880 are likely related to the completion of construction activities during the past two years. The improvements on the four arterial segments are likely related to new signal timings.

Table 1
Improved Segments
Segments at LOS “F” in 2000 and not in 2002

	CMP Route	Direction	Segment Limits		2000 LOS (Speed)	2002 LOS (Speed)	Prior LOS F
			From	To			
P.M. PEAK PERIOD							
1.	I-80	WB	I-580 Split	Toll Plaza	F (26.3)	E (38.8)	'91-'93, '97-'00
2.	I-580	WB	Center	I-580/238	F (24.0)	E (34.1)	'00
3.	I-880	SB	SR 92	Tennyson	F (27.6)	E (35.8)	'00
4.	Hesperian	NB	Grant	Lewelling	F (9.2)	E (12.2)	'00
5.	Hesperian	SB	Spinglake	Lewelling	F (9.8)	D (15.8)	'00
6.	Adeline	SB	MLK Jr-North	MLK Jr-South	F (9.5)	E (13.8)	'95,'00
7.	SR 13 Ashby	EB	College	Domingo	F (6.3)	D (11.0)	'91,'00
8.	SR 84 Mowry (Fre)	EB	Peralta	SH 238	F (8.4)	C (22.9)	'00
9.	SR 123 San Pablo	NB	Allston	University	F (5.0)	D (11.4)	'98, '00
A.M. PEAK PERIOD							
10.	I-880	SB	Tennyson	Alvarado-Niles	F (28.8)	D (46.2)	'00
11.	I-880	SB	SR 262/ Mission	Dixon Landing	F (11.4)	D (41.9)	'96-'00
12.	I-80 AM	WB	University	I-80/I-580 Split	F (16.1)	E (33.0)	'97,00

ORIGIN-DESTINATION SURVEYS

Peak period travel times were surveyed between ten pairs of origin and destinations in Alameda County for auto, transit, and in one case, bicycle, and in another case an HOV lane. Auto travel times changed on many routes, decreasing or staying the same on five routes (Hayward-Newark, Emeryville-Berkeley, Fremont-Pleasanton, Fremont-San Jose, Fremont-Alameda) and increasing on four routes (Hayward-Livermore, Oakland-San Leandro, Oakland-Pleasanton, and Alameda-Oakland). The HOV travel time was over 40 percent lower than the single-occupant vehicle travel time on the Fremont to San Jose route. Transit times generally improved since the 2000 surveys, with only the Fremont to San Jose auto-transit pair increasing substantially. Except for a few routes (Oakland-San Leandro, Oakland-Pleasanton, Fremont-Alameda), transit travel times are at least double that of auto travel.

This year for the first time, auto travel time on the 3 bay bridges in Alameda County is included in the LOS Monitoring Report. While the travel time does not represent a true “home” to “work” origin-destination pair, it does provide information on travel time across the Bay for monitoring purposes. The end points were between I-880 and I-80 in Alameda County and SR 101 in San Francisco and San Mateo Counties. The results are summarized in Chapter 5, and show that there are clear directional travel patterns. This data will be collected again, so that trends and patterns can be evaluated in future reports.

STUDIES OF SATURDAY CAPACITY CONDITIONS

Data was analyzed for the first time in 2002 for Saturday and general weekend traffic conditions. This methodology uses Caltrans hourly traffic count data on the freeway system and compares these counts to the estimated capacity on various segments. The results show three LOS “F” segments, on the approach to the Bay Bridge and the on SR 24 at the Caldecott Tunnel. All other freeways are operating at acceptable conditions on Saturdays, although several isolated congested areas were found, which were likely connected to some special events on the day of the surveys. The LOS F segments are also congested during the weekday afternoon commutes.

BICYCLE COUNTS

For the first time, bicycle count data is included in the LOS Monitoring Report. On June 28, 2001, the Alameda County Congestion Management Agency (ACCMA) Board approved the *Alameda Countywide Bicycle Plan*. As part of the Plan, the need for bicycle counts and historical trend information was identified. Several jurisdictions agreed to count one intersection every two years as part of the LOS Monitoring effort. These counts are summarized in the Chapter 7.

1. INTRODUCTION

The Congestion Management Program statute, passed by the California State Legislature in 1990, requires that all elements of the Program be monitored at least biennially by the designated Congestion Management Agency (CMA)². The Alameda County Congestion Management Agency, as the designated CMA for Alameda County, has established the Alameda County Congestion Management Program (CMP) which requires that Level of Service (LOS) standards be established and monitored biennially in even numbered years on the Alameda County CMP designated roadway system. The CMP system includes all of the major freeways and arterial roadways in Alameda County and is shown in Figure 1.

The objectives of this monitoring effort are:

- to determine the average travel speeds and existing LOS throughout Alameda County;
- to identify those roadway segments in the County that are operating at LOS "F"; and
- to identify long-term trends in traffic congestion on the CMP network.

The CMP roadway system consists of approximately 230 miles. Of this total, 134 miles are freeways, 70 miles are conventional state highways, and 25 miles are City/County arterials. The full list of routes, summarized by jurisdiction, is shown in Table 2. Of the fifteen jurisdictions, Piedmont is the only city in Alameda County that does not have any roadways that are part of the CMP network.

The study of P.M. peak hour travel times has been conducted on the CMP network continuously since 1991. Starting in 1994, the study was expanded to include A.M. peak period runs on selected arterials and freeways. In 1996, the comparative travel times between auto and transit, and in one case bicycle, was also included for five selected origin-destination (O-D) pairs that reflect typical work trips in Alameda County. Over the years, additional O-D pairs were added, resulting in 10 home-work pairs being studied in 2002. In addition, this year three pairs were added representing the three Bay bridges that connect to Alameda County.

Included in this report for the first time are Saturday highway LOS conditions and bicycle counts at selected intersections across the County.

² The most recent Alameda County Congestion Management Program (CMP) was adopted by the Alameda County Congestion Management Agency on September 27, 2001. The original CMP was adopted on October 24, 1991.

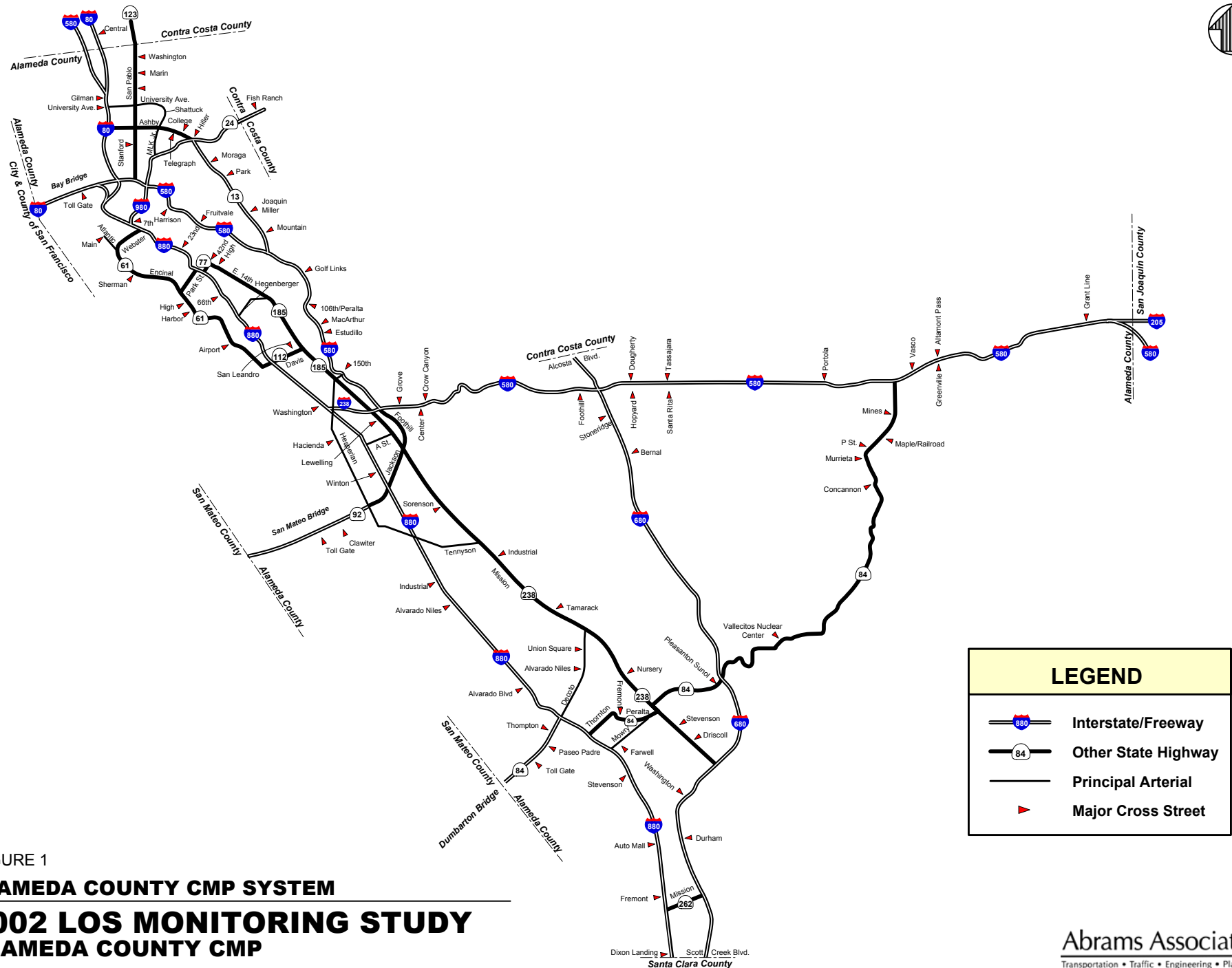


Table 2
Alameda County CMP Designated Roadway System³
Routes and Estimated Mileage by Jurisdiction

Jurisdiction	Freeway	Miles	Other State Highways	Miles	Other Arterials	Miles
Albany	I-80 I-580	0.61 0.92	SR 123 (San Pablo Ave.)	1.22	None	--
Berkeley	I-80	3.14	SR 123 (San Pablo Ave.) SR 13 (Ashby/Tunnel Rd.)	2.36 3.87	University Ave. Shattuck Ave. ML King Jr Blvd. Adeline St.	2.04 1.84
Emeryville	I-80	1.31	SR 123 (San Pablo Ave.)	0.68	None	--
Oakland	I-80 I-880 I-980 I-580 SR 24 SR 13	4.09 7.66 2.30 11.28 4.50 5.43	SR 123 (San Pablo Ave.) SR 13 (Tunnel Rd.) SR 61/260 (Tubes) SR 61 (Doolittle Dr.) SR 77 (42nd Ave.) SR 185 (E 14th St.)	1.19 0.10 0.66 2.39 0.31 3.98	MLK Jr. Blvd. Hegenberger Rd. 29th Ave./23rd Ave. -(See Park St- Alameda)	0.89 1.80 0.85
Piedmont	None	--	None	--	None	--
Alameda	None	--	SR 61 (Doolittle Dr., Otis, Webster St) SR 61/260 (Tubes)	4.47 0.65	Atlantic Ave. Park St.	0.80 0.55
San Leandro	I-880 I-580	3.78 2.95	SR 61 (Doolittle Dr.) SR 61/112 (Davis St.) SR 185 (E 14th St.)	0.70 1.78 3.16	150th Ave. Hesperian Blvd.	0.49 0.97
Hayward	I-880 SR 92	4.23 6.36	SR 185 (Mission Blvd.) SR 238 (Mission Blvd.) SR 238 (Foothill Blvd.) SR 92 (Jackson St.)	0.85 3.29 1.50 1.58	A St. Hesperian Blvd. Tennyson Rd.	1.61 2.60 2.32
Union City	I-880	1.70	SR 238 (Mission Blvd.)	2.57	Decoto Rd.	1.76
Fremont	I-680 I-880 SR 84	6.20 11.96 3.17	SR 238 (Mission Blvd.) SR 262 (Mission Blvd.) SR 84 (Thornton, Fremont, Mowry Ave.)	5.03 1.22 10.99	Decoto Rd. Mowry Ave.	1.15 2.96
Newark	SR 84	1.99	None	--	None	--
Pleasanton	I-580 I-680	4.65 5.26	None	--	None	--
Livermore	I-580	4.61	SR 84 (First St.)	4.63	None	--
Dublin	I-680	1.84	None	--	None	--
Unincorporated Areas	I-680 I-580 I-238 I-880	7.91 22.50 1.99 1.93	SR 84 (Vallecitos Rd.) SR 185 (Mission Blvd. & E 14th) SR 238 (Foothill Blvd.)	7.97 2.47 0.79	Hesperian Blvd.	1.99
Totals		134 mi		70 mi		25 mi

³ As adopted by the Alameda County Congestion Management Agency, October 24, 1991

LEVEL OF SERVICE

Roads and intersections are evaluated in terms of “Level of Service” (LOS) which is a measure of driving conditions and vehicle delay. Levels of Service range from “A” (the best) to LOS “F” (the poorest).

- Levels of Service A, B, and C indicate conditions where traffic can move relatively freely.
- Level of Service D describes conditions where delay is more noticeable.
- Level of Service E describes conditions where traffic volumes are at or close to capacity, resulting in significant delays.
- Level of Service F characterizes conditions where traffic demand exceeds the available capacity, with very slow speeds (stop-and-go), long delays (over one minute at intersections), and average speeds of less than half of the uncongested or free-flow speed.

CMP LEVEL OF SERVICE STANDARDS

The CMP statute requires that a level of service standard be established for the designated CMP system roadways. Each year, member agencies must demonstrate that all CMP system roadways within their jurisdictions are operating at or above the CMP traffic LOS standard. A member agency’s gas tax subventions may be withheld if the member agency does not maintain the traffic LOS standard or have an approved deficiency plan for roadways that fall below the LOS standard.

The basic level of service standard for CMP monitoring purposes is LOS “E”. An exception is made for roadways that operated at LOS “F” in the 1991 “baseline” conditions. These roadways were “grandfathered” in at LOS “F”.

2. STUDY METHODOLOGY

The Alameda County CMP established that measurement of LOS be based on average travel speed, consistent with the method described in the "Manual of Traffic Engineering Studies"⁴. The study methodology involves establishing roadway segment boundaries, collecting travel time data, computing travel speeds, and comparing the average speeds with the LOS speed ranges as specified in the 1985 Highway Capacity Manual⁵. For this study, the "floating car" method was used to record travel times between roadway segments.

DEFINITION OF ROADWAY SEGMENTS

The 230-mile Alameda County CMP was divided into approximately 280 segments for this study, using the methodology described below for the different roadway classifications.

Freeways

Major interchanges were used as the segment boundaries for freeways. Along more heavily traveled sections, the segments generally span from one to three interchanges. Where traffic volumes entering and exiting the freeway were minor, three or more sections were combined into longer segments. This is the case, for instance, in the eastern section of the I-580 corridor.

Arterials

For arterials, each section between two adjacent signals was first reviewed to determine its arterial class as Class I, II, or III. Arterial class is based on access control, land use intensity, free-flow speed, and other factors as defined in the 1985 Highway Capacity Manual (Chapter 11, pp. 11-1 to 11-4)⁶. Break points between segments generally occur at jurisdiction boundaries, at points where the number of travel lanes change, at major arterial street crossings, and at points where land use, speed limit, or canalization schemes change significantly. The segment boundaries for the arterial roadways are identical for both directions and the distances are generally the same or sufficiently close so as to be considered equal. Nevertheless, the distances for each direction of the same segment may differ somewhat in cases of very wide intersections.

⁴ Paul C. Box and Joseph C. Oppenlander, *Manual of Traffic Engineering Studies*, 4th ed. (Arlington VA.: Institute of Transportation Engineers, 1976).

⁵ Transportation Research Board Special Report 209, *Highway Capacity Manual*, (Washington, D. C.: Transportation Research Board, 1985).

⁶ Highway Capacity Manual, Special Report 209, a publication of the Transportation Research Board, Washington D.C., 1985

LEVEL OF SERVICE SPEED STANDARDS

This study uses the LOS speed standards approved by the Alameda County CMA shown in Table 3 for arterials and freeways. The standards for other more unique types of roadway segments are described below.

Rural Roadways

One of the CMP routes, State Route 84 from the southern city limit of Livermore to Mission Boulevard in Fremont, is a two-lane rural roadway, which requires a special analysis procedure. On this roadway, traffic and speed characteristics are fairly uniform. Variations in speed are a function of roadway curvature and the presence of slow trucks in the traffic stream. Based on suggested guidelines from the Highway Capacity Manual,⁷ LOS “A” is deemed to occur when vehicles are traveling at a free flow speed for the given roadway conditions. Special studies were conducted in the 1992 surveys during off-peak, low-volume conditions to document the free flow speed. LOS “F” is estimated to occur when speeds have dropped below 50 percent of the free flow speeds. Levels of Service “B” to “E” are calculated at even intervals between free flow speeds and LOS “F” speeds.

Freeway-to-Freeway and State Route-to-Freeway Ramps

Separate travel time/speed runs were conducted for the ramps at freeway-to-freeway interchanges, since these connections can frequently have very different characteristics than the freeways themselves. The guidelines for establishing LOS were similar to those used for rural highways. LOS “A” is deemed to occur when vehicles are traveling at the free flow speeds for the given roadway conditions. Special studies were previously conducted as a part of the 1992 studies, during off-peak low-volume conditions, to document free flow speeds. Per the suggested guidelines of the Highway Capacity Manual, LOS “F” occurs when speeds drop below 50 percent of the free flow speeds. Levels of Service “B” to “E” are calculated at even intervals between free flow speeds and LOS “F” speeds. The ramp locations that have been studied for the 2002 LOS study are the following:

- 1.) I-80 to I-580 connections (Oakland-Emeryville area)
- 2.) I-580 to SH 24 connections (Oakland)
- 3.) SH 13 to SH 24 connections (in the vicinity of the Caldecott Tunnel)
- 4.) I-880 to I-238 connections (in the Hayward area)
- 5.) I-238 to I-580 connections (in the Hayward area)
- 6.) I-580 to I-680 connections (Pleasanton/Dublin)
- 7.) I-880 to SH 260 connections (at the Alameda tubes)

⁷ Highway Capacity Manual, Special Report 209, a publication of the Transportation Research Board, Washington D. C., 1985.

Table 3
Relationship Between Average Travel Speed and Level of Service
Alameda County Congestion Management Agency

Levels of Service for Freeway Sections⁸

LOS	Density (pc/mi/ln)⁹	Speed (mph)	Volume/Capacity Ratio	Maximum Service Flow (pcphpl)¹⁰
A	≤ 12	≥ 60	0.35	700
B	≤ 20	≥ 55	0.58	1,000
C	≤ 30	≥ 49	0.75	1,500
D	≤ 42	≥ 41	0.90	1,800
E	≤ 67	≥ 30	1.00	2,000
F	> 67	< 30	--- ¹¹	---

Arterial Levels of Service¹²

Arterial Class	I	II	III
Range of Free Flow Speeds (mph)	45 to 35	35 to 30	35 to 25
Typical Free Flow Speed (mph)	40 mph	33 mph	27 mph
Level of Service	Average Travel Speed (mph)		
A	≥ 35	≥ 30	≥ 25
B	≥ 28	≥ 24	≥ 19
C	≥ 22	≥ 18	≥ 13
D	≥ 17	≥ 14	≥ 9
E	≥ 13	≥ 10	≥ 7
F	< 13	<10	<7

⁸ Adapted from Table 4-1, Special Report 209, Highway Capacity Manual; 1985.

⁹ Passenger cars per mile per lane.

¹⁰ Maximum service flow under ideal conditions, expressed as passenger cars per hour per lane.

¹¹ Highly variable, unstable flow; V/C Ratio is not applicable.

¹² Table 12-1, Special Report 209, Highway Capacity Manual, 1985. For Rural Roadways, refer to Table 8-1 in the Highway Capacity Manual.

DATA COLLECTION

Travel time data was collected for all segments on the CMP network during the period from March 27, 2002 through June 6, 2002. Travel time runs were made during the afternoon peak hours of 4:00 to 6:00 P.M. In addition, runs were made during the A.M. peak period (7:00 to 9:00 A.M.) on selected critical segments. Consistent with the CMP guidelines, all runs were made on a Tuesday, Wednesday, or Thursday.

The travel time runs were spread evenly throughout the two-hour period. For each travel time run, the actual clock time was recorded as the test car passed the checkpoint. The travel times between checkpoints were then computed as the difference between the two corresponding clock times.

For the majority of the CMP system, at least six runs were made on each roadway segment. More than six runs were made on many LOS “E” and “F” segments where heavy congestion has been previously reported, where a greater range of fluctuation in travel speed was found, or where questionable data was reported. On certain routes where free flow conditions of LOS “C” or better were experienced in 2002, and where this data is consistent with previous reports, the studies were concluded after four runs were completed. A table has been prepared showing the number of runs that were conducted on each route and is included in the *Technical Compendium*, available for review at the ACCMA.

Construction Activities

Several CMP roadway segments were under construction during the 2002 study period, and the travel time/speed data on these routes could be considerably different than normal average traffic conditions. When the travel time runs were conducted (March-June, 2002), there was major construction on the I-680/I-580 interchange in Pleasanton and on SR 84 at Holmes. There were no lane closures, but there was heavy construction activity and construction-related traffic at these locations. Where construction was considered to be a factor, this has been noted in the *Technical Compendium*.

During the 2002 surveys, there were no locations where through lanes were completely closed during the peak hours. At several locations, there may have been construction occurring along the edge of the roadway, but it was judged that the construction did not have a significant impact on the travel time results.

As a result of the noted freeway construction, in many cases the distances between ramps will be changing. When construction is completed, these ramp-to-ramp distances will need to be checked and revised accordingly.

DATA ANALYSIS PROCEDURES

The travel speeds have been determined using the measured times and the distances between the checkpoints. The section-by-section and run-by-run travel time and speed data were checked for errors and abnormal results. Mathematically, the average travel time for a segment was computed as the sum of the average travel times of the individual sections comprising the segment. The average travel speed has been determined by dividing the average travel time for the segment into the segment length. For a more complete discussion of study methodology, see the description that was included in the initial study for establishing the existing Level of Service¹³.

The LOS results represent the average travel time during the two-hour peak periods on an average weekday. For many roadway segments, the range of measured speeds is very constant throughout the two-hour period. For others, the travel times within this period can be quite different, especially when the peak congestion lasts for less than two hours.

For arterials, the travel time results are closely related to (1) traffic signal timing, and (2) the vehicle location in the traffic platoon during the study. In analyzing the data, if a travel time run was made at the very beginning of the two-hour period, or toward the end of the period, and the data point was significantly different than other runs, this data point was discarded. Additional travel time runs were then made during the time period when traffic congestion was more severe.

Some special conditions exist on freeway segments in the vicinity of major off-ramps. There may be different speeds in each lane of the freeway if the rightmost lanes are affected by congestion in the off-ramp. At some of the freeway-to-freeway interchanges on the CMP network, drivers may experience a different LOS in the rightmost lane or on the ramp connection than on the freeway itself. In this study, separate travel time/speed runs were made for ramps since these connections can frequently have very different characteristics from the freeways themselves. However, no separate travel time/speed runs were made for the rightmost lanes of the freeways approaching ramps. For example, LOS “F” conditions were not measured on I-880 northbound at I-238 based on traffic flow in the center lanes (consistent with the data collection methodology), nor were LOS “F” conditions measured on the connector ramp itself (beyond the gore point) from northbound I-880 to I-238, although drivers in the rightmost lane on northbound I-880 often experience significant congestion approaching the I-238 off-ramp.

¹³ Abrams Associates, “Establishing the Existing Level of Service for the Alameda County CMP Designated Roadway System,” November 26, 1991.

3. LEVEL OF SERVICE RESULTS

This section of the report describes the results of the surveys of freeway, arterial and ramp-to-ramp segments. Segments that are operating at Level of Service “F” are highlighted as well as segments that have changed significantly since the 2000 survey.

The full listing of peak hour speed and Level of Service results for all CMP network segments is included in the Appendix, on pages A-1 through A-17. The data are subdivided as follows:

- P.M. Freeway Segments, Pages A-1 to A-4
- P.M. Arterial Segments, Pages A-5 to A-12
- P.M. Ramps and Special Segments, Page A-13
- A.M. Segments (Freeways only), Page A-14 to A-15
- Freeway Segments, Saturday Peak, Page A-16 to A-17

In addition to the speed and LOS results, these tables also show the number of lanes on each segment, and the estimated average daily traffic. Each entry also shows the results of the previous study (2000) to provide a comparison. The complete field data, which shows the results of each individual travel time run and other study results, is contained in the *Technical Compendium of Travel Time Studies – 2002*, which is on file at the ACCMA.

P.M. PEAK PERIOD RESULTS

The official monitoring of the Alameda County CMP roadway system is based on the P.M. peak period level of service. Analyzing the County as a whole, the survey results show that the 2002 speeds have remained generally similar to the 2000 LOS monitoring study. The overall average speed is almost identical to the 2000 results. There appears to be an improvement in speeds on certain routes (e.g. I-680 in the Sunol area) that could be attributed to the downturn in the DOT.com economic environment. However, there are other routes, such as I-580 in the Pleasanton-Livermore area, that have much slower speeds than two years ago, suggesting that there is continuing growth in this corridor. Over the two year period from 2000 to 2002, there are no overall trends that can be readily identified.

Level of Service “F” Segments – P.M. Peak

Figure 2 shows a graphic of the County portraying the Level of Service “F” segments that were uncovered in the 2002 surveys. The surveys revealed that twenty-two (22) segments are operating at Level of Service “F” in 2002. These segments are listed in Table 4. Of these segments, sixteen (16) are on the freeway system, four (4) are located on arterial routes, and two (2) segments are on freeway-to-freeway ramps. This is an increase in the number of segments in comparison to the 2000 survey results.

Figure 2 - LOS F Segments

Segments and freeway-to-freeway ramp locations which were LOS “F” for the first time (5 locations).

Three (3) freeway segments, and two (2) arterial segments were found to be operating at Level of Service “F” for the first time during the 2002 survey. They are the following:

- Two adjacent segments on I-580 EB in the Livermore area, between Santa Rita Road and State Highway 84 (First Street). These two segments total 7.2 miles and were found to operate at an average speed of 25 mph. The segment of I-580 EB from I-680 to Santa Rita Road continues to operate at LOS “F”, resulting in a total of 9.4 miles of freeway lanes that are currently operating at Level of Service “F” in the Pleasanton-Livermore section of I-580. While there was some construction activity along the shoulders in this area during the studies, this did not appear to have an impact on the results.
- I-880 NB in Union City between Decoto Road and Alvarado-Niles Road (2.7 miles). This segment deteriorated to LOS “F” in the 2002 studies. The adjacent section of I-880 between Alvarado-Niles and Tennyson was first found to be at LOS “F” in the 2000 studies.
- SR 123 NB (San Pablo Avenue) in Oakland between 53rd and Stanford (0.27 miles).
- SR 84 EB in an unincorporated area between Sunol Road and Vallecitos Entrance (2.6 miles). This segment was part of a larger segment that, at the request of the City of Pleasanton, was subdivided into three smaller segments.

Segments and freeway-to-freeway ramp locations which were LOS “F” in previous surveys and continue to operate at LOS “F” (17 locations).

There were 17 segments which were previously designated at LOS “F” in one or more previous surveys and which continue at LOS “F”. Five of these segments were not measured at LOS “F” in the 1991 CMP baseline conditions, and therefore are not “grandfathered” segments. Twelve of the segments were previously measured at LOS “F” in 1991, and therefore are “grandfathered” segments. It is expected that conditions on several of the LOS “F” segments may be changed due to current or programmed construction projects, e.g., the construction on the I-680/I-580 interchange in Pleasanton and on SR 84 at Holmes.

Segments which were previously designated as LOS “F”, but which have improved in the 2002 surveys (9 locations).

There were nine P.M. peak hour segments in 2002 which improved from the LOS “F” conditions reported in the 2000 surveys.

- I-80 westbound from I-580 split to the toll plaza improved from LOS “F” to “E”.
- I-580 westbound from Center Street to I-580/238 improved from LOS “F” to “E”.
- I-880 southbound from SR 92 to Tennyson Road improved from LOS “F” to “E”.
- Hesperian Boulevard northbound from Grant Avenue to Lewelling Boulevard improved from LOS “F” to “E”.
- Hesperian Boulevard southbound from Springlake Drive to Lewelling Boulevard improved from LOS “F” to “D”.
- Adeline Street southbound from Martin L. King Jr. Way-North to Martin L. King Jr. Way-South improved from LOS “F” to “E”.
- SR 13 Ashby Avenue eastbound from College Avenue to Domingo Avenue improved from LOS “F” to “D”.
- SR 84 (Fremont) eastbound from Peralta Boulevard to SH238 improved from LOS “F” to “C”.
- SR 123 San Pablo northbound from Allston Way to University Avenue improved from LOS “F” to “D”.

Table 4
Level of Service “F” Segments, P.M. Peak Period

	CMP Route	From:	To:	Length (miles)	2000 Results	2002 Results	Prior “F” Results	Comments	Run Data (Start Time)
1.	I-80 EB	Bay Bridge Toll Gate	I-580 SB Merge	1.15	F 22.1	F 14.2	93-'00	Has consistently been at LOS “F” since 1993.	1. Wed 3/20 4:35 4. Wed 5/8 5:20 2. Thu 3/21 5:30 5. Tue 4/9 4:00 3. Wed 5/8 4:30 6. Tue 4/9 5:05
2.	I-80 EB	I-580 SB Merge	University	2.80	F 23.0	F 18.9	91-95 97-'00	LOS “F” from 1991 – 1995, and from 1997 - 2000	1. Wed 3/20 4:45 4. Wed 5/8 5:30 2. Thu 3/21 5:40 5. Tue 4/9 4:20 3. Wed 5/8 4:40 6. Tue 4/9 5:25
3.	I-80 EB	University	Central	2.40	E 37.0	F 27.7	91-92 96-97	LOS “F” from 1991 – 1992, and from 1996 - 1997	1. Thu 3/21 4:55 4. Wed 5/8 5:28 2. Thu 3/21 5:45 5. Tue 4/9 4:35 3. Wed 5/8 4:40 6. Tue 4/9 5:40
4.	I-80 WB	University	I-580 Split	2.43	F 9.9	F 30.6	91-92 94-00	LOS “F” from 1991 – 1992, And from 1994 - 2000	1. Wed 3/20 4:45 4. Wed 5/8 5:30 2. Thu 3/21 5:40 5. Tue 4/9 4:20 3. Wed 5/8 4:40 6. Tue 4/9 5:25
5.	I-238 EB	I-880	I-580	2.28	C 48.9	F 28.4	91-92, 94, 96-97	LOS “F” from 1991 – 1992, 1994 And from 1996 - 1997	1. Thu 3/28 4:00 4. Tue 3/26 4:40 2. Thu 3/28 4:20 5. Tue 3/26 5:00 3. Tue 3/26 4:20 6. Tue 5/7 5:30
6.	I-238 WB	I-580	I-880	1.60	F 24.4	F 25.2	'97-'00	Has consistently been at LOS “F” since 1997.	1. Thu 3/28 3:45 4. Tue 3/26 4:30 2. Thu 3/28 4:10 5. Tue 3/26 4:55 3. Tue 3/26 4:10 6. Tue 5/7 5:15
7.	I-580 EB	I-680	Santa Rita	2.73	F 13.4	F 10.9	98-'00	Has consistently been at LOS “F” since 1998.	1. Wed 4/3 4:15 4. Thu 5/8 4:05 2. Wed 4/3 5:20 5. Tue 5/14 4:20 3. Tue 5/7 4:25 6. Tue 5/14 5:15
8.	I-580 EB	Santa Rita	Portola	4.47	D 41.2	F 22.9	None	First time surveyed at LOS “F”	1. Wed 4/3 4:30 4. Thu 5/8 4:35 2. Wed 4/3 5:30 5. Tue 5/14 4:30 3. Tue 5/7 4:40 6. Tue 5/14 5:25
9.	I-580 EB	Portola	SH 84/1 st	2.70	E 30.7	F 23.5	None	First time surveyed at LOS “F”	1. Wed 4/3 4:35 4. Thu 5/8 4:55 2. Wed 4/3 5:45 5. Tue 5/14 4:50 3. Tue 5/7 4:50 6. Tue 5/14 5:35

Shaded segments indicate LOS F conditions that were first reported during the 1991 surveys.

Table 4 (Continued)
Level of Service "F" Segments, P.M. Peak Period

	CMP Route	From:	To:	Length (miles)	2000 Results	2002 Results	Prior "F" Results	Comments	Run Data (Start Time)
10.	I-880 NB	Decoto	Alv-Niles	2.68	E 35.0	F 24.0	None	First time surveyed at LOS "F"	1. Tue 3/26 5:40 4. Wed 5/8 5:55 2. Wed 3/27 4:20 5. Thu 5/9 5:00 3. Tue 4/30 4:40 6. Tue 5/14 4:15
11.	I-880 NB	Alv-Niles	Tennyson	2.66	F 23.9	F 19.7	'00	LOS "F" in 2000	1. Tue 3/26 5:45 4. Wed 5/8 6:05 2. Wed 3/27 4:30 5. Thu 5/9 5:05 3. Tue 4/30 4:50 6. Tue 5/14 4:25
12.	I-880 SB	I-238	A St.	2.03	F 24.0	F 26.7	91-92, '00	LOS "F" from 1991 – 1992, And 2000	1. Tue 3/26 4:35 4. Thu 5/2 4:30 2. Thu 3/28 3:55 5. Tue 5/7 4:15 3. Tue 4/30 5:35 6. Tue 5/7 4:30
13.	SR 24 EB	I-580 On Ramp	Fish Ranch	4.52	E 33.4	F 22.5	91-97	LOS "F" from 1991 - 1997	1. Tue 3/26 6:10 4. Tue 4/30 4:45 2. Wed 3/27 4:55 5. Tue 4/30 5:25 3. Tue 4/30 4:10 6. Tue 5/7 5:10
14.	SR 92 EB	San M CL	Toll Gate Outlet	2.61	F 19.1	F 25.2	97-'00	LOS "F" from 1997 - 2000	1. Thu 3/28 5:00 4. Wed 5/15 5:30 2. Thu 5/2 4:30 5. Wed 5/15 4:30 3. Thu 5/2 5:10 6. Tue 5/14 5:00
15.	SR 92 EB	Toll Gate Outlet	Clawiter	1.76	F 22.1	F 22.3	91-94 96-'00	LOS "F" from 1991 – 1994, and from 1996 - 2000	1. Thu 3/28 5:00 4. Wed 5/15 5:30 2. Thu 5/2 4:30 5. Wed 5/15 4:30 3. Thu 5/2 5:10 6. Tue 5/14 5:00
16.	SR 92 EB	Clawiter	I-880	2.10	F 21.2	F 23.8	91-92, 94- 95, 97-00	Has consistently been at LOS "F" since 1991.	1. Thu 3/28 5:00 4. Wed 5/15 5:30 2. Thu 5/2 4:30 5. Wed 5/15 4:30 3. Thu 5/2 5:10 6. Tue 5/14 5:00
17.	Decoto WB	Union Square	Alv-Niles Rd.	0.25	F 8.2	F 4.6	91-94, 96,98,'00	Has been consistently at LOS "F" in previous surveys	1. Wed 4/3 4:25 4. Wed 4/17 5:00 2. Thu 4/4 4:05 5. Thu 5/2 5:30 3. Wed 4/17 4:15 6. Thu 5/2 5:55
18.	SR 84(Frem) WB	Peralta	Thornton	0.33	D 14.4	F 7.4	91-92 94	LOS "F" from 1991 – 1992 and 1994	1. Tue 3/26 5:30 4. Wed 4/10 5:15 2. Wed 3/27 4:35 5. Thu 4/11 4:45 3. Thu 3/28 5:15 6. Thu 5/2 5:00

Shaded segments indicate LOS F conditions that were first reported during the 1991 surveys

Table 4 (Continued)
Level of Service "F" Segments, P.M. Peak Period

	CMP Route	From:	To:	Length (miles)	2000 Results	2002 Results	Prior "F" Results	Comments	Run Data (Start Time)
19.	SR 123/San Pablo NB	53 rd	Stanford	0.27	D 15.1	F 9.9	None	First time surveyed at LOS "F"	1. Thu 4/25 4:30 4. Tue 4/30 5:00 2. Thu 4/25 5:10 5. Tue 5/7 4:00 3. Tue 4/30 4:20 6. Tue 5/7 4:40
20.	SR 84 EB	Pleas/ Sunol Rd.	Vallecitos Nuclear Entrance	2.60	N/A	F 14.9	None	New segment checkpoints for 2002 survey.	1. Wed 5/29 4:05 4. Tue 6/11 5:00 2. Wed 5/29 5:15 5. Thu. 6/13 3:50 3. Tue 6/11 4:20 6. Wed 6/13 4:45
21.	I-80/I-580 Interchange	I-80 SB	I-580 EB	0.30	F 13.5	F 16.2	'91-'92, '97-'00	LOS "F" from 1991 – 1994, and from 1996 - 2000	1. Tue. 5/7 4:20 4. Thu 3/28 4:45 2. Thu. 5/2 5:30 5. Tue 5/7 4:00 3. Wed. 3/27 4:20 6. Wed. 3/27 5:45
22.	SR-13/SR-24 Interchange	SR-13 NB	SR-24 EB	0.32	F 4.6	F 6.5	'92-'00	LOS "F" since 1992 when it was first measured	1. Wed 5/8 5:15 4. Tue 4/9 4:00 2. Wed 5/8 4:20 5. Thu. 4/11 5:40 3. Tue 5/7 5:00 6. Thu. 5/8 5:10

Shaded segments indicate LOS F conditions that were first reported during the 1991 surveys

AM PEAK PERIOD RESULTS

The A.M. peak period has been surveyed since 1994. The A.M. peak data was collected only for selected segments that were considered to be the most critical freeway segments during the morning commute peak hours. The study methodology was the same as for the P.M. studies. Approximately 90 miles of the CMP network were studied in 2002 to determine the A.M. Peak Level of Service.

The results of the A.M. peak period studies are not used to determine CMP conformity findings, but only to provide supplemental information for use by the CMA, and for use in the Countywide traffic model. The results of these surveys are shown in Figure 3 and Table 5 and are included in the Appendix on pages A-14 and A-15.

A.M. peak period data was collected during the 2002 surveys for an expanded number of routes. The 2002 surveys in the A.M. peak were expanded to include about 90 miles of travel time surveys for a total of 55 segments, up from 22 in previous years. A number of new locations were documented that are operating at LOS "F". Fourteen (14) segments were measured at LOS "F" as shown in Table 5. Six of these segments were previously measured to be LOS "F". Eight new segments that had not been previously measured were also at LOS "F".

The freeway segments with the most congested A.M. traffic conditions are I-80 on the approaches to the Bay Bridge, I-238 in Hayward, I-580 in Castro Valley, I-680 at the Sunol Grade, SR 24 (Caldecott Tunnel) in the off-peak direction, SR 92 westbound at the San Mateo Bridge, and SR 84 at the Dumbarton Bridge.

On I-80, there has been some improvement for westbound traffic due to the completion of the HOV lanes and the completion of construction in the area. The delay and congestion at the Toll Plaza, however, is comparable to previous surveys.

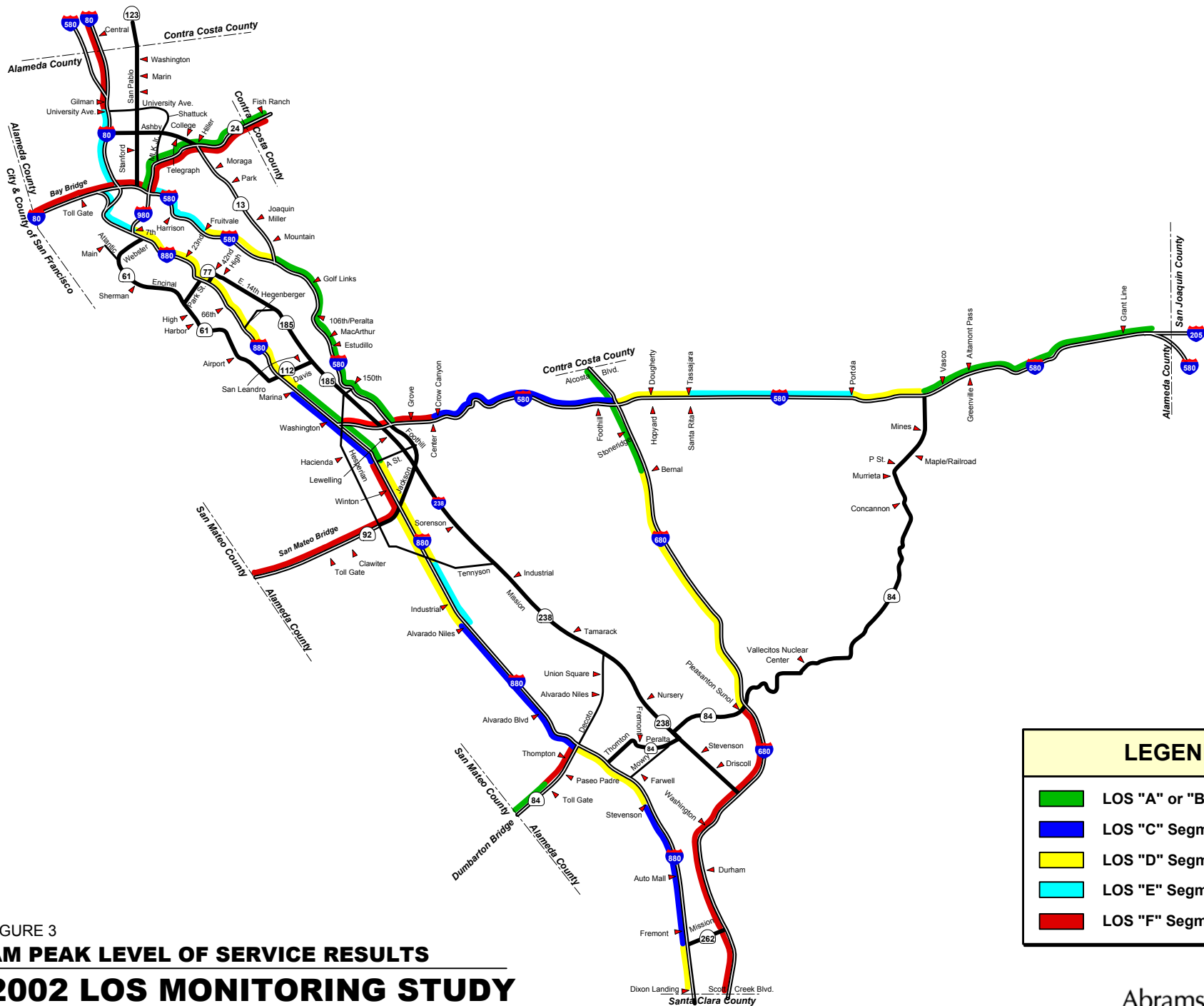


FIGURE 3
AM PEAK LEVEL OF SERVICE RESULTS
2002 LOS MONITORING STUDY
ALAMEDA COUNTY CMP

LEGEND	
■	LOS "A" or "B" Segments
■	LOS "C" Segments
■	LOS "D" Segments
■	LOS "E" Segments
■	LOS "F" Segments

Table 5
Level of Service “F” Segments, A.M. Peak Period

	CMP Route	From:	To:	Length (miles)	2000 Results	2002 Results	Prior “F” Results	Comments	Run Data (Start Time)
1.	I-80 WB	Central	University	2.48	F 24.0	F 29.7	97-'00	LOS “F” in 1997 - 2000	1. Thu 3/21 7:00 4. Wed 4/3 8:15 2. Tue 3/26 8:30 5. Wed 4/24 7:00 3. Wed 4/3 7:20 6. Wed 4/24 8:00
2.	I-80 WB	I-80/I-580 Split	Toll Plaza	1.20	F 4.7	F 8.8	97-'00	LOS “F” from 1997 - 2000	1. Thu 3/21 7:00 4. Wed 4/3 8:15 2. Tue 3/26 8:30 5. Wed 4/24 7:00 3. Wed 4/3 7:20 6. Wed 4/24 8:00
3.	I-80 WB	Toll Gate	County Line	2.00	F 11.1	F 13.2	97-'00	LOS “F” from 1997 - 2000	1. Thu 3/21 7:00 4. Wed 4/3 8:15 2. Tue 3/26 8:30 5. Wed 4/24 7:00 3. Wed 4/3 7:20 6. Wed 4/24 8:00
4.	I-238 WB	I-580/SR 238	I-880	1.7	F 18.0	F 22.5	'96-'98, '00	LOS “F” from 1996 – 1998 And in 2000	1. Wed 4/24 7:00 4. Tue 5/7 8:00 2. Wed 4/24 7:35 5. Thu 5/9 7:45 3. Tue 5/7 7:30 6. Thu 5/9 8:30
5.	I-580 WB	Center	I-580/I-238	1.94	n/a	F 15.6	none	New Segment in 2002	1. Wed 4/17 8:00 4. Thu 5/2 8:20 2. Thu 4/18 8:40 5. Tue 5/7 8:25 3. Wed 5/1 7:30 6. Wed 5/8 8:40
6.	I-580 NB	SR-24	I-80/I-580 Split	0.69	n/a	F 26.7	none	New Segment in 2002	1. Wed 4/17 8:45 4. Wed 5/1 7:30 2. Thu 4/18 8:30 5. Wed 5/1 8:30 3. Thu 5/9 7:15 6. Thu 5/9 8:100
7.	I-680 SB	SR-84	SR-238/Mission	4.6	F 17.6	F 28.2	97-'00	LOS “F” from 1997 - 2000	1. Wed 3/27 7:15 4. Wed 5/8 8:00 2. Wed 3/27 8:00 5. Wed 5/8 8:30 3. Wed 4/10 7:30 6. Thu 5/9 8:20
8.	I-680 SB	SR-238/Mission	Scott Creek	6.41	n/a	F 25.8	none	New Segment in 2002	1. Wed 3/27 7:15 4. Wed 5/8 8:00 2. Wed 3/27 8:00 5. Wed 5/8 8:30 3. Wed 4/10 7:30 6. Thu 5/9 8:20
9.	I-880 SB	“A” St.	SR-92	1.81	F 15.9	F 21.9	97-'00	LOS “F” from 1997 - 2000	1. Thu 4/4 7:10 4. Tue 4/9 8:20 2. Thu 4/4 7:50 5. Thu 5/2 7:00 3. Tue 4/9 7:45 6. Thu 5/2 8:20

Table 5 (Continued)
Level of Service "F" Segments, A.M. Peak Period

	CMP Route	From:	To:	Length (miles)	2000 Results	2002 Results	Prior "F" Results	Comments	Run Data (Start Time)
10.	SR-24 EB	I-580	Fish Ranch Rd.	4.52	n/a	F 26.5	none	New Segment in 2002	1. Tue 4/16 7:10 4. Tue 4/30 7:25 2. Tue 4/16 7:45 5. Tue 4/30 8:15 3. Tue 4/16 7:20 6. Tue 4/30 8:45
11.	SR-84 WB (Dumbarton Br.)	I-880	Toll Gate	2.89	n/a	F 7.8	none	New Segment in 2002	1. Tue 4/23 7:15 4. Tue 5/7 7:45 2. Tue 4/23 8:00 5. Thu 5/9 7:45 3. Tue 4/23 8:30 6. Thu 5/9 8:20
12.	SR-92 WB (San Mateo Br.)	I-880	Clawiter	2.01	n/a	F 23.1	none	New Segment in 2002	1. Wed 4/24 7:00 4. Thu 5/2 8:15 2. Wed 4/24 7:45 5. Thu 5/9 7:05 3. Thu 5/2 7:20 6. Thu 5/9 8:00
13.	SR-92 WB (San Mateo Br.)	Clawiter	Toll Gate	1.87	n/a	F 9.4	none	New Segment in 2002	1. Wed 4/24 7:00 4. Thu 5/2 8:15 2. Wed 4/24 7:45 5. Thu 5/9 7:05 3. Thu 5/2 7:20 6. Thu 5/9 8:00
14.	SR-92 WB (San Mateo Br.)	Toll Gate	San Mateo County Line	2.61	n/a	F 16.7	none	New Segment in 2002	1. Wed 4/24 7:00 4. Thu 5/2 8:15 2. Wed 4/24 7:45 5. Thu 5/9 7:05 3. Thu 5/2 7:20 6. Thu 5/9 8:00

4. SYSTEM OBSERVATIONS

The systemwide statistics for the county arterials and freeways are shown in Table 6. Based on an average of all CMP roads in the County, the overall average speeds on the freeway system increased very slightly, while the average arterial speeds decreased by 0.37 mph.

Table 6
Average Vehicle Speeds in Peak Hours
on Alameda County CMP Roadways

	2000 Results	2002 Results
Freeways P.M.	51.02 mph	51.21 mph
Arterials P.M.	23.64 mph	23.27 mph
Freeways A.M.	39.64 mph	42.03 mph

During the A.M. peak period, the average speed on the freeway segments that were studied increased from 39.64 mph to 42.03 mph. However, it is not possible to make a comparison between the two sets of A.M. peak data because the 2000 surveys included 55 miles of freeways, and the 2002 data included 90 miles of freeways; therefore, the results are not directly comparable.

Figures 4 through 7 show the results of the P.M. peak travel time runs and the resulting LOS for each of the segments on the CMP designated system by roadway and by jurisdiction. These figures each portray a sub area of the County which generally corresponds to the County planning areas. (See Appendix tables on page A-1 through A-17 for a full listing of all results).

ALAMEDA COUNTY 2002 LEVEL OF SERVICE MONITORING RESULTS PM PEAK HOUR - NORTHERN AREA

Figure 4



LEGEND

- LOS "A" or "B" Segments
- LOS "C" Segments
- LOS "D" Segments

- LOS "E" Segments
- LOS "F" Segments

******* This segment was previously identified as Level of Service "F" in 1991 when the CMP was first adopted.

1 2 3 4 5 MILES

ALAMEDA COUNTY 2002

LEVEL OF SERVICE MONITORING RESULTS

PM PEAK HOUR - LOWER CENTRAL AREA

Figure 6



LEGEND

- LOS "A" or "B" Segments
- LOS "C" Segments
- LOS "D" Segments

- LOS "E" Segments
- LOS "F" Segments

******* This segment was previously identified as Level of Service "F" in 1991 when the CMP was first adopted.

0 1 2 3 MILES

ALAMEDA COUNTY 2002

LEVEL OF SERVICE MONITORING RESULTS

PM PEAK HOUR - UPPER CENTRAL AREA

Figure 5



ALAMEDA COUNTY 2002 LEVEL OF SERVICE MONITORING RESULTS PM PEAK HOUR - EASTERN AREA

Figure 7



LEGEND

- LOS "A" or "B" Segments
- LOS "C" Segments
- LOS "D" Segments

- LOS "E" Segments
- LOS "F" Segments

******* This segment was previously identified as Level of Service "F" in 1991 when the CMP was first adopted.

1 2 3 4 5 MILES

COMPARISONS TO PREVIOUS STUDIES

The 2002 P.M. peak period travel time and speed survey results were compared to the survey results from 1991 to 2000 on the major routes on the Alameda County CMP system. Table 7 shows these results for the freeway system, while Table 8 lists the major arterial routes. For each route, the segments have been aggregated to show the entire length of the route throughout Alameda County.

Freeways. Average speeds on five freeway corridors decreased notably in 2002 compared to previous years.

The I-80 eastbound corridor speed decreased by 27 percent compared to 2000 and was 4 percent lower than the previous slowest average speed recorded in 1995 and 1998. This increase in travel time may be due to traffic changes caused by the completion of the connections to the I-880 Cypress Freeway. In the I-80 westbound corridor, average speeds increased 26 percent to 22.2 mph since the 2000 surveys. This is probably due to the additional lane connecting I-80 to I-580 and I-880, resulting in decreased congestion. Caltrans completed this project in 2001.

Speeds on eastbound I-580 to the San Joaquin County line continue to decrease. The 2002 surveys resulted in an average speed of 30.5 miles per hour, which is 25 percent lower than the speeds recorded in 2000. The reduced travel speed could be related to increased demand for commuters traveling to homes in the Central Valley, as well as construction activity near the I-680 interchange.

Speeds decreased on I-880 in both the northbound and southbound directions since the 2000 survey. In the northbound direction, a decrease of 21 percent to 37.5 mph is noted. In the southbound direction, speeds decreased 18 percent to 49.1 mph since 2000.

Speeds continued to decrease on eastbound SR 24 through the Caldecott Tunnel compared to 2000. Speeds decreased from 33.4 mph to 21.4 mph or 36 percent.

Arterials. Average speeds increased or stayed the same on 9 arterial routes and decreased on 15 arterial routes between 2000 and 2002. The most significant improvements in travel time occurred on eastbound SR 84/Fremont Blvd. (30 percent improvement) and on southbound SR 84 in Livermore (126 percent improvement).

The average speeds in the following routes continue to decrease compared to 2000 and the previous surveys in general:

- Hesperian Boulevard northbound (11% decrease)
- SR 13/Ashby Avenue westbound (13% decrease)
- SR 84/Livermore eastbound (3% decrease)
- SR 123/San Pablo Avenue northbound (18% decrease)
- SR 238/Mission Boulevard northbound (16% decrease)
- Martin Luther King, Jr. Way/Shattuck Avenue northbound (5% decrease)
- Martin Luther King, Jr. Way/Shattuck Avenue southbound (6% decrease)
- Decoto Road westbound (17% decrease)
- SR 84/Niles Canyon eastbound (23% decrease)
- SR 84/Niles Canyon westbound (13% decrease)

Table 7
Comparison of P.M. Peak Hour Travel Time Data & Speed on Selected Freeway Routes

CMP Route	Direction	From	To	Length (miles)	1991	1992	1993	1994	1995	1996	1997	1998	2000	2002
I-80	EB	Tollgate	Central	6.35	15:56 23.5	18:24 20.4	18:12 20.6	17:19 21.7	18:32 20.2	18:23 20.8	16:37 20.8	18:50 20.2	14:18 26.6	19:45 19.3
	WB	Central	Tollgate	6.11	14:27 25.3	15:26 23.7	16:31 22.1	15:41 23.3	12:52 28.4	14:53 24.6	17:37 24.9	13:07 28.0	20:52 17.6	16:33 22.2
I-580	EB	SR 238/ Foothill	I-205	30.33	32:55 56.3	33:40 55.0	33:24 55.4	33:37 55.1	33:05 49.9	33:04 55.0	n/a n/a	n/a n/a	49:25 40.5	59:43 30.5
	WB	I-205	SR 238/ Foothill	30.11	32:10 57.2	33:05 55.6	33:14 55.4	32:07 55.1	32:48 49.9	29:30 55.0	n/a n/a	n/a n/a	33:09 55.0	33:10 54.5
I-580	SB	I-80	I-238	16.18	18:18 52.6	18:35 51.8	19:37 49.1	21:53 44.0	20:08 47.8	18:13 53.2	23:09 41.9	16:16 60.0	15:21 62.7	17:45 54.7
	NB	I-238	I-80	15.28	16:11 57.7	16:50 55.5	16:48 55.6	18:20 51.0	18:18 50.1	15:36 52.2	17:26 54.3	14:58 61.2	14:36 62.8	15:25 59.5
I-680	NB	Scott Creek	Alcosta (On)	21.13	21:59 58.1	22:31 56.7	23:07 55.2	22:31 56.7	23:01 55.4	24:16 52.2	25:59 48.8	25:07 50.5	21:54 58.2	24:39 51.4
	SB	Alcosta (On)	Scott Creek	21.27	21:45 59.0	22:05 58.1	22:36 56.8	23:23 54.9	22:48 56.3	21:04 60.6	22:49 55.9	19:06 66.8	20:13 63.2	20:44 61.6
I-880	NB	Dixon Landing	I-980	31.42	40:49 44.8	41:15 44.4	39:00 46.9	42:37 42.9	42:59 42.6	50:26 45.5	47:05 40.0	49:21 38.8	41:26 47.5	50:20 37.5
	SB	I-980	Dixon Landing	30.93	41:55 43.0	44:41 40.4	43:17 41.7	47:36 37.9	41:55 43.0	40:31 45.8	42:45 43.4	37:19 49.7	40:48 49.1	45:46 40.5
SR 13	NB	Mountain	Hiller	5.42	6:12 53.6	6:40 49.9	7:09 46.5	6:51 48.5	6:45 51.3	6:45 48.1	8:00 43.6	6:06 53.2	6:24 50.9	6:27 50.4
	SB	Hiller	Mountain	5.43	6:04 56.4	5:46 59.4	6:02 56.7	6:31 52.5	6:48 48.5	6:55 47.2	5:45 56.9	5:31 59.1	5:59 59.5	5:58 54.6
SR 24	EB	I-580 (On)	Fish Ranch	4.52	9:19 30.1	9:35 29.2	9:14 30.3	9:25 29.8	9:34 29.3	11:10 24.3	9:21 29.5	6:59 38.9	8:08 33.4	12:41 21.4
	WB	Fish Ranch	I-580 (Off)	4.47	5:00 54	4:58 58	5:07 53	5:01 54	4:41 58	5:24 50	5:33 48	4:30 60	4:41 57	4:26 60.5

Table 8
Comparison of P.M. Peak Hour Travel Time Data & Speed on Selected Arterial Routes
Alameda County CMP System (1991-2002)

CMP Route	Direction	From	To	Length (miles)	1991	1992	1993	1994	1995	1996	1997	1998	2000	2002
Hesperian	NB	Tennyson	14th St.	5.62	19:35 17.2	19:19 17.5	19:07 17.6	18:40 18.1	18:04 18.7	16:06 20.5	18:32 18.2	17:18 19.5	18:10 17.3	22:00 15.3
	SB	14th St.	Tennyson	5.60	17:20 19.4	16:05 20.9	16:03 20.9	17:38 19.1	16:56 19.8	16:10 20.7	18:40 18.0	16:13 20.7	16:41 19.5	17:24 19.3
SR 13 Ashby	EB	I-80	Hiller	3.77	15:17 14.7	13:19 16.9	12:00 18.8	13:40 16.5	14:29 15.5	13:40 16.5	13:03 17.3	14:26 15.6	16:57 13.4	15:04 15.0
	WB	Hiller	I-80	3.80	14:13 16.0	13:09 17.2	16:47 13.5	13:49 16.4	15:25 14.7	15:09 15.0	13:35 16.8	14:06 16.1	14:22 15.9	16:36 13.8
SR 61	SB	Atlantic	Davis	7.57	18:40 24.9	18:07 25.0	23:06 19.6	18:30 24.5	18:32 24.5	19:36 23.1	19:09 23.7	19:01 23.9	17:41 29.4	19:47 23.0
	NB	Davis	Atlantic	7.57	19:32 24.3	18:38 25.5	21:07 22.5	18:41 25.5	18:31 25.7	18:58 24.1	19:34 23.2	19:24 23.4	19:17 25.6	18:49 24.1
SR 84 Fremont	WB	SR-238	I-880 SB	4.29	10:07 25.0	8:27 30.5	10:30 24.5	10:56 23.5	13:49 18.6	10:27 24.1	10:41 24.1	11:42 22.0	10:23 24.9	11:33 22.3
	EB	I-880 SB	SR-238	4.29	11:21 24.3	10:24 24.8	11:50 21.8	11:45 21.9	13:08 19.6	11:38 18.7	13:48 18.7	12:56 19.9	14:31 16.6	11:58 21.5
SR 84 Livermore	SB	I-580 WB	Concannon	4.14	9:20 32.4	10:36 28.5	10:59 27.5	9:27 32.0	11:18 26.8	11:03 27.4	9:52 25.2	11:01 27.5	10:20 10.2	10:45 23.1
	EB	Concannon	I-580 WB	4.14	11:32 26.2	10:32 28.7	9:35 31.6	10:23 29.1	8:02 37.6	10:46 28.1	10:23 23.7	11:12 27.0	11:57 22.6	11:25 21.8
SR 123	SB	Carlson	35th St.	5.44	16:26 19.0	16:32 19.7	15:19 21.3	14:22 22.7	17:15 18.9	18:09 18.0	18:08 18.0	18:15 17.9	18:48 17.4	17:22 18.8
	NB	35th St.	Carlson	5.45	16:56 20.1	15:32 21.1	17:30 18.7	18:12 18.0	15:30 21.1	17:42 18.5	18:23 17.8	26:00 12.6	18:36 17.6	22:39 14.4
SR 185	SB	42nd St.	SR 92/238	10.47	42:55 14.1	28:47 21.8	34:34 18.2	n/a n/a	33:36 18.7	30:31 20.6	30:47 20.4	29:12 21.5	32:11 19.3	30:56 20.3
	NB	SR 92/238	42nd St.	10.47	38:34 18.6	28:54 21.7	32:14 19.5	n/a n/a	30:37 20.5	28:40 21.8	28:40 20.5	31:02 20.2	29:34 21.3	29:36 21.2

Table 8 (Continued)
Comparison of P.M. Peak Hour Travel Time Data & Speed on Selected Arterial Routes
Alameda County CMP System (1991-2002)

CMP Route	Direction	From	To	Length (miles)	1991	1992	1993	1994	1995	1996	1997	1998	2000	2002
SR 238 Mission	NB	I-680 NB	Jackson	12.34	24:05 30.7	n/a n/a	26:24 28.0	27:30 26.9	24:36 30.1	27:10 27.3	28:06 26.4	27:04 27.4	26:37 29.2	30:05 24.6
	SB	Jackson	I-680 NB	12.34	24:28 30.3	n/a n/a	31:09 23.8	28:15 26.2	28:15 26.2	26:45 27.7	24:45 30.0	27:20 27.1	24:26 31.0	26:13 28.2
MLK/Shattuck Ave	NB	SR 24	University	2.78	7:02 17.5	6:43 18.3	6:09 20.0	6:07 20.1	10:30 11.7	12:01 13.7	10:59 15.2	11:41 14.3	11:16 14.8	11:54 14.0
	SB	University	SR 24	2.76	10:07 16.4	9:12 18.0	9:06 18.2	9:59 16.6	10:55 15.2	10:26 15.7	10:21 16.0	10:45 15.4	12:01 13.8	12:45 13.0
University Ave	EB	I-80 Off	Shattuck Pl	2.05	7:02 17.5	6:43 18.3	6:09 20.0	6:07 20.1	5:50 21.1	7:07 17.2	7:27 16.5	7:21 16.7	8:05 15.2	7:36 16.2
	WB	Shattuck Pl.	I-80 Off	2.05	6:38 18.5	6:30 18.9	7:47 15.8	7:07 17.3	6:04 20.3	7:27 16.5	8:44 14.1	9:51 12.5	7:45 15.9	7:01 17.5
Decoto Road	WB	Hwy 238	County Line	8.97	11:46 45.7	12:43 42.3	12:45 42.2	13:56 38.6	14:03 38.3	16:30 32.6	15:45 34.2	13:58 38.5	14:54 37.3	17:25 30.9
	EB	County Line	Hwy 238	8.94	12:41 42.3	14:01 28.3	13:53 38.6	14:40 36.6	16:31 32.5	17:49 30.0	16:28 30.5	17:06 31.4	15:50 34.9	14:35 36.8
SR 84 Niles Canyon	EB	SR 238	Concannon	15.35	n/a n/a	n/a n/a	n/a n/a	25:20 36.4	24:27 37.7	25:17 34.3	n/a n/a	n/a n/a	29:20 31.4	38:08 24.2
	WB	Concannon	SR 238	15.01	n/a n/a	n/a n/a	n/a n/a	20:37 43.7	20:43 43.5	25:58 41.4	n/a n/a	n/a n/a	19:56 45.8	22:41 39.7

Segments with Notable Changes in the Last Two Years

Table 9 shows those roadways and segments for which the 2002 P.M. peak period surveys reported significant changes in the travel time results as compared to previous surveys. Routes are listed that have seen a change of two or more Level of Service grades between 2000 and 2002.

Many of the improved travel time segments are related to the completion of construction activities between 2000 and 2002. Others appear to be related to specific intersection or spot improvements that have been made during this time period. On the arterial routes, it is sometimes difficult to pinpoint the reason for specific changes. They may be related to changes in signal timing.

Table 9
Segments with Significant Changes from Previous Year
P.M. Peak Period

CMP Route	Segment	Change in Speed Data	Comments
<i>Segments with Decrease in Speed Resulting in Level of Service Change of 2 or More Grades</i>			
I-238 EB	I-880 to I-580	Decrease from 49 to 28 mph.	Increased traffic, continuing construction activities, and lack of roadway capacity.
I-580 EB	Santa Rita to Portola	Decrease from 41 to 23 mph.	
I-580 SB	I-80 to Harrison	Decrease from 64 to 41 mph.	
I-580 NB	Estudillo to SH 13 Off	Decrease from 63 to 52 mph.	
I-580 NB	SH 24 On-ramp to I-80/580 Split	Decrease from 59 to 43 mph.	Affected by queues extending back from Hwy 24 interchange.
I-580 EB	I-80 Jct. to Central	Decrease from 58 to 42 mph.	Affected by queues backing up from I-80.
I-680 NB	SR 238 to SR 84	Decrease from 70 to 50 mph.	Increasing commute volumes.
I-880 NB	A St. to I-238	Decrease from 56 to 44 mph.	Increased traffic volumes.
I-880 NB	Hegenberger to High/42nd	Decrease from 62 to 48 mph.	Increased traffic volumes.
I-880 SB	Tennyson to Alvarado-Niles	Decrease from 59 to 35 mph.	Increased traffic volumes.
I-880 SB	Alvarado-Niles to Decoto	Decrease from 60 to 51 mph.	
I-880 SB	SR 262/Mission to Dix Landing (off)	Decrease from 41 to 35 mph.	
SR-13 NB	Mountain On to Joaquin Miller/Lincoln	Decrease from 61 to 53 mph.	
A Street WB	SR-238 to Western	Decrease from 27 to 11 mph.	
Hegenberger WB	Baldwin to Edgewater	Decrease from 36 to 23 mph.	Changes in signal timing, increased traffic at Oakland Airport.
Hesperian SB	SH 92 WB to Tennyson	Decrease from 23 to 15 mph.	Construction on parallel routes in the corridor

Table 9 (Continued)
Segments with Significant Changes from Previous Year
P.M. Peak Period

CMP Route	Segment	Change in Speed Data	Comments
<i>Segments with Decrease in Speed Resulting in Level of Service Change of 2 or More Grades</i>			
Mowry WB	Farwell to I-880	Decrease from 30 to 21 mph.	
SR 61 (Doolittle) SB	Airport to Davis	Decrease from 35 to 22 mph.	Changes in signal timings and increased traffic due to area growth.
SR 61 NB	High/Otis to Park	Decrease from 38 to 18 mph.	Changes in signal timings.
SR 77 (42 nd) EB	E 14 th to I-880 NB	Decrease from 32 to 17 mph.	
SR 84/Fremont (Fre) WB	Peralta to Thornton	Decrease from 14 to 7 mph.	Construction on other roads in the corridor.
SR 112 (Davis) EB	I-880 to San Leandro	Decrease from 18 to 12 mph.	
SR 123 San Pablo SB	Carlson to Washington	Decrease from 34 to 19 mph.	Changes in signal timings.
SR 123 San Pablo NB	35 th to Park	Decrease from 20 to 13 mph.	Changes in signal timings and increased traffic due to area growth.
SR 123 San Pablo NB	53 rd to Stanford	Decrease from 15 to 10 mph.	Changes in signal timings and increased traffic due to area growth.
SR 123 San Pablo NB	Washington to Carlson	Decrease from 24 to 18 mph.	Changes in signal timings.
SR 238 (Mission) SB	Sorenson to Industrial	Decrease from 30 to 24 mph.	

Table 9 (Continued)
Segments with Significant Changes from Previous Year
P.M. Peak Period

CMP Route	Segment	Change in Speed Data	Comments
<i>Segments with Increase in Speed Resulting in Level of Service Change of 2 or More Grades</i>			
I-580 EB	I-238/Fthl Off to Grove	Increase from 47 to 55 mph.	Completion of I-580/680 interchange construction.
I-580 EB	Grove to I-680	Increase from 47 to 56 mph.	Completion of I-580/680 interchange construction.
I-580 NB	Harrison to SH 24 On-ramp	Increase from 47 to 55 mph.	Completion of I-980 construction.
I-580 NB	SH 24 On-ramp to I-80/580 Split	Increase from 54 to 63 mph.	Completion of I-980 construction.
I-980 WB	SR 24 at 580 to I-880	Increase from 48 to 55 mph.	Completion of construction activities.
SR 13 NB	Joaquin Miller/Lincoln to I-580 Ramp	Increase from 54 to 61 mph.	
Hegenberger WB	E 14 th to Baldwin	Increase from 26 to 36 mph.	
Hesperian SB	Grant to Hacienda	Increase from 21 to 31 mph.	
Mowry EB	I-880 to Farwell	Increase from 14 to 26 mph.	
Park/23 rd EB	Kennedy to E 11 th	Increase from 14 to 25 mph.	
SR 13 Ashby EB	College to Domingo	Increase from 6 to 11 mph.	
SR 61 (Doolittle) NB	Harbor Bay to High/Otis	Increase from 26 to 38 mph.	
SR 61 NB	Park/Encinal to Sher/Cent	Increase from 14 to 27 mph.	
SR 84/Mowry (Fre) EB	Peralta to SH 238	Increase from 8 to 23 mph.	
SR 84 (Liv) SB	P St. to 4 th /Murr	Increase from 18 to 31 mph.	

Table 9 (Continued)
Segments with Significant Changes from Previous Year
P.M. Peak Period

CMP Route	Segment	Change in Speed Data	Comments
<i>Segments with Increase in Speed Resulting in Level of Service Change of 2 or More Grades</i>			
SR 112 (Davis) EB	Doolittle to I-880	Increase from 23 to 37 mph.	
SR 112 (Davis) WB	San Leandro to I-880	Increase from 22 to 32 mph.	
SR 123 San Pablo NB	Stanford to Ashby	Increase from 15 to 23 mph.	Signal timing improvements.
SR 123 San Pablo NB	Allston to University	Increase from 5 to 11 mph.	Signal timing improvements.
SR 185 (14 th) SB	Lewelling to Sunset	Increase from 24 to 31 mph.	
SR 185 Hayward SB	Sunset to SR 92/238	Increase from 18 to 24 mph.	
SR 185 Hayward NB	SR92/238 to Sunset	Increase from 15 to 29 mph.	

5. TRAVEL TIME STUDIES OF ORIGIN-DESTINATION PAIRS

This section describes travel time surveys between selected origin and destination points for auto, transit, bicycle and HOV lane trips. The purpose of these studies is to evaluate the comparative performance of various transportation modes for the Annual Performance Report required by the CMP. These paired tests, which were run simultaneously in the same corridor, provide insight into journey-to-work travel times between major employment centers and residential areas in Alameda County. Both auto and transit trips were surveyed for ten O-D pairs, eight during the P.M. peak period, two during the A.M. peak period, including one where HOV lanes were used. In addition, bicycle travel times were recorded for one origin-destination pair between Emeryville and Berkeley.

These ten origin-destination (O-D) pairs have been selected by the CMA Board and by ACTAC to simulate typical commute trips on the County's major travel corridors. The first five pairs were surveyed in 1996, 1997, 1998 and 2000. Four additional O-D pairs were surveyed for the first time in 1998. An additional survey of HOV lane travel times was added for one of the O-D pairs (Fremont to San Jose) in 2000. These ten trip combinations, and the specific routes that were followed, are listed in Table 10.

This year for the first time, auto travel time on the 3 bay bridges in Alameda County is included in the LOS Monitoring Report. While the travel time does not represent a true "home" to "work" origin-destination pair, it does provide information on travel time across the Bay for monitoring purposes. The end points are between I-880 and I-80 in Alameda County and SR 101 in San Francisco and San Mateo County.

Table 10
Travel Routes for the Alameda County O-D Pairs - PM Peak Hour

#	Peak Period	Origin	Destination	Transit/Bus Route	Highway Travel
1	P.M.	Hayward Kaiser Med. Ctr, 27400 Hesperian.	Newark Residence near Lafayette St at Newark Blvd.	Walk to Hesperian, AC 97 to AC 29, at Union City BART Stn., to Newark/Lafayette, walk to door.	Walk to parking; Hesperian to Union City Blvd., to Newark Blvd., to Lafayette St.; park and walk to door.
2	P.M.	Emeryville Chiron Office Bldg., 4560 Horton St., near 53rd & Hollis Sts.	Berkeley Residence near Marin Circle at Los Angeles Ave.	Walk to 53rd and San Pablo, AC 72 or 73 to AC 43 at Solano Way, exit at Marin Circle, walk to door.	Walk to parking; 53rd St. to San Pablo Avenue, to Hopkins Street, to Marin Circle; park and walk to door.
3	P.M.	Hayward Cal State University at Carlos Bee Ave.	Livermore Residence near Portola and North Livermore Avenue.	Walk to AC 92, to Hayward BART, BART to Dub/Pleas Station, Wheels 12 to Portola & N. Murietta, walk to Portola and North Livermore Ave.	Walk to parking; Carlos Bee, to Mission Blvd, to "A"/Redwood, to I-580, to Portola exit, to N Livermore Ave.; park and walk to door.
4	P.M.	Oakland Downtown Oakland 1333 Broadway office building	San Leandro Residence near Manor St. and Chapel Ave.	Walk to BART 12th St. Station; BART to San Leandro Station, to AC 84, walk to door.	Walk to parking; local streets to I-880, to Marina Blvd, to Chapel Avenue; park and walk to door.
5	P.M.	Fremont NUMMI Plant 45500 Fremont Blvd.	Pleasanton Residence near Valley Ave. and Greenwood Rd.	Walk to AC 22 to Fremont BART, BART to Dubl/Pleas Station, Wheels 10 to Greenwood Road and Valley Avenue, walk to door.	From parking to Fremont Blvd to Durham Road to I-680 to Sunol Blvd to Greenwood Rd.

Table 10 (Continued)
Travel Routes for the Alameda County O-D Pairs - PM Peak Hour

#	Peak Period	Origin	Destination	Transit/Bus Route	Highway Travel
6	A.M.	Fremont Residence near Thorton Ave. at Fremont Blvd.	San Jose Hitachi, 201 Tasman at Zanker	Walk to AC 27, transfer to SCVTA 140 at Fremont BART, walk to door.	From residential driveway to Thornton, to I-880, to SR 237, to Zanker; park and walk to door.
7	A.M.	Fremont Residence near Thorton Ave. at Fremont Blvd.	San Jose Hitachi, 201 Tasman at Zanker	Future transit service.	HOV: From residential driveway to Thornton, to I-880 HOV lanes, to SR 237, to Zanker; park and walk to door.
8	P.M.	Oakland Federal Building., Jefferson at 14 th	Pleasanton Residence near Hopyard Rd. and Valley Ave.	Walk to BART 12 th St., BART to Dublin/Pleasanton Station., Wheels 8, walk to door.	Walk to parking; local streets to I-880 to I-238 to I-580, to Hopyard to Valley; park and walk to door.
9	P.M.	Freemont Washington Hospital at Mowry Avenue.	Alameda Bay Farm Island, Residence near Searidge at Robert Davey.	Walk to Fremont BART, BART to Coliseum, AC 49 to Alameda, walk to door.	Walk to parking; Mowry to I-880 to Hegenberger, to Doolittle, to Island; park and walk to door.
10	P.M.	Alameda Naval Air Station, Atlantic at Main.	Oakland Business near College Ave. at Lawton.	AC 10 to BART 12 th St., BART to Rockridge, walk to door.	Walk to parking; Atlantic to Webster, to I-880, to I-980, to SR 24, Claremont exit to Clifton, to Lawton, to College, park and walk to door.

SURVEY METHODOLOGY

Except for the O-D surveys on the bridges, two surveyors, one driving an auto and one taking transit (or a bicycle in one case), traversed between the designated origin and destination points, documenting their travel times and identifying any anomalies that they encountered during the course of their trip (i.e., a traffic accident). Transit trips were taken either on buses (AC Transit, UC Transit, VTA, Wheels), rail (BART or ACE), or a combination of these modes. The bicycle trip was taken on local streets in Emeryville and Berkeley. Whenever possible, the auto and transit trip started on the same day at the same time. Surveys were conducted on mid-week days (Tuesday through Thursday) during the period between April 9 and May 28, 2002. Most routes were surveyed on two different days. The data for O-D Pairs 1-5 and 8-10 were collected during the P.M. peak period (4:00 to 6:00 P.M.), while O-D Pairs 6 and 7 were surveyed between 7:00 and 9:00 A.M.

Select travel time data were recorded for each trip. Table 11 lists the trip components that were noted for each type of trip.

Table 11
Time Components of Origin-Destination Surveys

Auto Trip	Transit Trip
<ul style="list-style-type: none"> • Start time at origin door (walk) • Auto departs parking • Merge onto 1st freeway • Merge onto 2nd freeway • Exit from freeway • Arrive at parking • Arrive at destination door (walk) 	<ul style="list-style-type: none"> • Stat time at origin door (walk) • Arrive at first transit stop • Board 1st bus/rail • Exit 1st bus/rail • Board 2nd bus/rail • Exit 2nd bus/rail • Board 3rd bus/rail • Exit 3rd bus/rail • Arrive at destination door (walk)

For the analysis of transit trip data, no more than half of a route's scheduled headway was used for the initial waiting time. The actual waiting time was used for all other transit transfers.

The Emeryville-Berkeley O-D Pair 2 was also surveyed by bicycle. Two travel time studies were conducted on this route, one each by two different riders. These data were also collected between 4:00 and 6:00 P.M., on days with good weather, and no incidents or accidents affecting traffic flow. The times do not include parking the bicycle, walking to the final destination, or changing clothes at the work site.

ORIGIN-DESTINATION SURVEY RESULTS

Table 12 lists the results of the 2002 origin-destination surveys, and also includes a comparison with the previous surveys.

Auto Times

The 2002 auto travel times for the O-D pairs varied somewhat compared with the surveys from previous years, with times increasing for some O-D pairs and decreasing for others.

The auto travel time on O-D Pair 1 from Hayward to Newark was similar to the average of the previous three surveys, indication that congestion on this corridor has not increased significantly.

The auto travel time on O-D Pair 2 Emeryville-Berkeley, was similar to the average of the previous three years, yet slightly decreasing. The overall travel time decreased slightly despite increased congestion conditions on northbound San Pablo Avenue between 53rd Avenue & Stanford in Oakland.

The average auto travel times on O-D Pair 3 from Hayward to Livermore, O-D Pair 4 from Oakland to San Leandro, O-D Pair 8 from Oakland to Pleasanton, and on O-D Pair 10 from Alameda to Oakland increased compared to the previous monitoring studies, but are comparable to previous years.

The average auto travel time on O-D Pair 5 from Fremont to Pleasanton, O-D Pair 6 from Fremont to San Jose, O-D Pair 7 from Fremont to San Jose and O-D Pair 9 from Fremont to Alameda decreased compared to previous monitoring studies.

The single-occupant auto travel time from Fremont to San Jose during the A.M. peak period decreased by 11 percent, from 55 to 49 minutes, but it is still higher than the 39 minutes observed in 1998. However, vehicles eligible for the high-occupancy vehicle lane on southbound I-880 were able to make the trip in 34 minutes, over 40 percent faster than the single occupant vehicles. This indicates that the HOV lanes provide a significant travel time benefit.

Transit Times

The average 2002 transit travel times generally improved compared to previous years with only the Fremont to San Jose pair increasing substantially. Observations about each O-D pair are listed below.

O-D Pair 1. The travel time for the transit O-D Pairs was 14 percent lower in 2002 than the time recorded on the 2000 survey. These results appear to be the result of an improvement in the transfer time between AC Transit and BART at the Union City station. Auto travel time remained comparable to the prior 2000 survey.

O-D Pair 2. The average transit travel time average was 56 minutes. Transit travel times were measured in the 2000 survey, but were found to not be reliable. 2002 Transit travel times have increased eight percent since 1998. There was a four percent improvement on auto travel time

since the last survey resulting in an average of 25 minutes. The bicycle average travel time was 30 minutes, very close to the auto travel time average, showing that bicycles are a competitive transportation alternative on this specific route.

O-D Pair 3. The transit travel time on this route was measured to be 141 minutes in the 2002 surveys. Auto travel times increased while transit travel times improved since the 2000 surveys; however, the average transit travel time average is triple the auto average time because of the many transfers required.

O-D Pair 4. The auto average time was three minutes longer than in 2000. The transit travel time improved by twelve percent to a 56-minute trip due to shorter transfer waiting times on AC Transit Route 84. Transit travel is competitive in this corridor.

O-D Pair 5. Travel times were comparable to previous years. No excessive wait or transfer times were recorded. However, the average transit travel time average is considerably more than auto travel time because of the transfers required.

O-D Pair 6. The 2002 auto average time was 49 minutes, 11 percent lower than the travel time in the prior survey. The average transit travel time was 118 minutes, somewhat longer than in 2000, and more than double the comparative auto travel time.

O-D Pair 7. The auto travel time for this route remained almost the same in comparison the prior survey, improving by one minute to a 34-minute trip. Transit service in this corridor not readily available at a reasonable travel time.

O-D Pair 8. Travel times by both auto and transit had very minimal variations on this route; the first increased two minutes or three percent, while the second improved five minutes or five percent. The transit time has been showing continue improvement since 1998, the year in which it was first surveyed.

O-D Pair 9. Travel times improved slightly by about four minutes for both autos and transit. Transit travel time has improved quite a bit since the 1998 surveys to an average time of 70 minutes, and is very competitive with auto travel time. Auto travel time has remained stable within a range between 50 to 57 minutes since 1998.

O-D Pair 10. The transit travel time for this route from Alameda to Oakland stayed about the same, while the auto travel time for this segment increased to 22 minutes in comparison to the 2000 survey.

Bicycle Times

O-D Pair 2, between Emeryville and Berkeley, shows that on this route, travel time by bicycle can be quite similar and competitive with auto. Bicycle trips for this 4.8 mile segment averaged about 31 minutes, as compared to a 22 minute trip by auto, and a 56 minute trip by bus transit (which requires a transfer).

Comparison of Travel Modes

Except for a few routes (Oakland – San Leandro, Oakland – Pleasanton, Fremont – Alameda) transit travel times on most of the surveyed origin-destination pairs were over double the auto times. Most of the transit delay is associated with transfers between lines. This is particularly an issue when the passenger must transfer to a bus line that does not operate at frequent intervals. Actual commuters who regularly use transit are more likely to time their trips to match known bus transfer schedules, and will probably have lower average travel times that these surveys indicate.

The bicycle travel time is very competitive on the Emeryville to Berkeley trip (O-D Pair 2), only 5 minutes longer than auto travel and less than half of the transit time. Bicycle commute trips may involve some additional time to deal with bicycle storage and changing clothes, which can add about 5 to 10 minutes to total commute time.

Table 12
Origin-Destination Pair Travel Times

O-D Pair	Origin	Destination	Mode	Driving Distance	1997 Average (minutes)	1998 Average (minutes)	2000 Average (minutes)	2002			
								Average (minutes)	No. of Runs	Range of Times	Percent Variation from '00
1	Hayward	Newark	Auto	11.2 mi	20	24	22	22	4	20-24	0%
PM			Transit		80	88	92	79	2	62-97	-14%
2	Emeryville	Berkeley	Auto	4.8 mi	25	25	26	25	4	22-28	-4%
PM			Transit		54	61	n/a	56	2	45-66	n/a (-8% from '98)
			Bike		30	33	30	30	2	30-31	0%
3	Hayward	Livermore	Auto	34.5 mi	51	53	45	49	4	45-53	9%
PM			Transit		102	144	152	141	2	137-145	-7%
4	Oakland	San Leandro	Auto	10.8 mi	34	35	29	32	4	29-34	10%
PM			Transit		48	74	64	56	2	54-59	-12%
5	Fremont	Pleasanton	Auto	18.0 mi	38	31	34	33	4	31-35	-3%
PM			Transit		105	130	122	125	2	123-127	2%
6	Fremont	San Jose	Auto	14.8 mi	---	39	55	49	4	46-54	-11%
AM			Transit		---	129	104	118	2	113-123	13%
7	Fremont	San Jose	Auto	14.8 mi	---	---	35	34	4	33-35	-3%
AM			Transit		---	---	---	---	---	---	---
8	Oakland	Pleasanton	Auto	26.6 mi	---	58	60	62	4	61-64	3%
PM			Transit		---	81	96	91	2	87-96	-5%
9	Fremont	Alameda	Auto	25.2 mi	---	50	57	53	4	52-60	-7%
PM			Transit		---	86	74	70	2	69-71	-5%
10	Alameda	Oakland	Auto	6.8 mi	---	21	17	21	4	19-24	+20%
PM			Transit		---	51	47	45	2	44-47	-4%

TRAVEL TIMES ON BAY BRIDGE CROSSINGS

Travel times on the three bridges to Alameda County are presented for the first time in the 2002 surveys, using auto travel time data collected annually by Caltrans on all the bridges for the morning and evening commute periods. Origin and destination travel times were recorded in the segments between I-880 or I-80 in Alameda County across the bridges to SR 101 in San Francisco and San Mateo Counties. Data represents year 2001 travel times, the most recent year for which data is available.

These results clearly show the directional patterns on the bridges. On the San Mateo Bridge, the peak traffic flow is towards San Mateo County in the morning and towards Alameda County in the afternoon. On the Dumbarton Bridge, the directions are the same, with peak traffic toward Santa Clara in the morning, and towards Alameda in the afternoon/evening. On the Bay Bridge (I-80), the morning commute experiences the slowest travel times in the westbound direction (31 minutes), with the westbound P.M. peak operating at about half that time (14 minutes).

This is the first time that this data has been presented in the LOS Monitoring Report. This data will be collected again in subsequent monitoring studies so that trends and patterns can be evaluated.

Table 13
Year 2001 Travel Times on Bay Bridge Crossings

Bridge	Time Period	From	To	Segment Travel Time	Total Travel Time
San Mateo Bridge (SR 84)	Westbound (toward San Mateo County)				
	A.M.	I-880 On-ramp	SM/ALA Co. Line	25	32
	A.M.	SM/ALA Co. Line	SR 101 On-ramp	7	
	P.M.	I-880 On-ramp	SM/ALA Co. Line	6	12
	P.M.	SM/ALA Co. Line	SR 101 On-ramp	6	
	Eastbound (toward Alameda County)				
	A.M.	SR 101 On-ramp	SM/ALA Co. Line	6	12
	A.M.	SM/ALA Co. Line	I-880 On-ramp	6	
	P.M.	SR 101 On-ramp	SM/ALA Co. Line	17	26
	P.M.	SM/ALA Co. Line	I-880 On-ramp	9	
Dumbarton Bridge (SR 92)	Westbound				
	A.M.	I-880 On-ramp	SM/ALA Co. Line	20	27
	A.M.	SM/ALA Co. Line	SR 101 On-ramp	7	
	P.M.	I-880 On-ramp	SM/ALA Co. Line	8	15
	P.M.	SM/ALA Co. Line	SR 101 On-ramp	7	
	Eastbound				
	A.M.	SR 101 On-ramp	SM/ALA Co. Line	7	13
	A.M.	SM/ALA Co. Line	I-880 On-ramp	6	
	P.M.	SR 101 On-ramp	SM/ALA Co. Line	20	29
	P.M.	SM/ALA Co. Line	I-880 On-ramp	9	
Bay Bridge (I-80)	Westbound				
	A.M.	I-580 merge	5 th Street off-ramp	31	31
	P.M.	I-580 merge	5 th Street off-ramp	17	17
	Eastbound				
	P.M.	Sterling St. on-ramp	I-580 off-ramp	14	14
	A.M.	Sterling St. on-ramp	I-580 off-ramp	8	8

6. SATURDAY FREEWAY LEVEL OF SERVICE RESULTS

This section of the report describes the results of the analysis of Saturday traffic volume data. While these traffic volumes are generally quite a bit lower than the weekday P.M. peak hour traffic, they do provide a good indication of the relative service that is being provided by the freeway system in Alameda County on Saturdays. The source of the data is Caltrans “Traffic Volume Counts” which provide Saturday hourly counts, by direction, for all State Highways in Alameda County. The data received from Caltrans covers the time period from January 1998 through February 2002. For the purpose of this study data for the calendar year 2000 was used to calculate roadway capacity.

SATURDAY PEAK HOUR

A review of this data shows that the time at which the peak traffic occurs varies widely as shown in Table 14. The Saturday peak hour occurs at different times of day as early as 11 to 12 P.M. in the morning to 5 to 6 P.M. in the afternoon depending on the roadway segment being studied. While some roads have a consistent peak hour from one week to the next, others will vary week by week. A key example is the Caldecott Tunnel (SR 24). The peak hour from week to week cannot be predicted. On one Saturday the westbound peak may be from 11 A.M. to 12 P.M., while on the next it may occur between 4 and 5 P.M. The peak hour frequently varies by direction as well.

SATURDAY LEVEL OF SERVICE

This methodology uses Caltrans hourly traffic count data on the freeway system and compares these counts to the estimated capacity on those segments. The procedures involved reviewing the four highest hourly counts on each segment measured in the calendar year 2000, and then taking the average of these four measurements. Unusual or “one time” hourly counts were disregarded when calculating these peak hours. The freeway segments for the Saturday data were merged together into longer segments for the most part. The highest hourly counts for the total facility were used when calculating capacity. The capacity of each segment was estimated based on the number of lanes, and was then adjusted based on other factors such as the grade on the segment, the spacing between on- and off-ramps, and any special geometric features.

The results of the Saturday analysis are that three (3) LOS “F” segments were identified, one on the approach to the Bay Bridge between I-580 and the Toll Plaza, and the second and third at the Caldecott Tunnel in the eastbound and westbound directions between I-580 and Fish Ranch Road. All other freeways are operating at acceptable conditions during the peak hour on Saturdays, although several isolated congested areas were found, likely connected to some special events on the day of the surveys. Note that the data for the Caldecott Tunnel does not specify which direction was using the four lanes of traffic. Included are two sets of results for this area, one based on two lanes of traffic, and a second based on four lanes of traffic.

Table 14

**Alameda County State Highways
Saturday Hour which Generally Features the Highest Traffic Volumes**

Highway	Saturday Peak Hour	Highway	Saturday Peak Hour
SH 13 (Oakland)	NB 4-5 pm SB 3-4 pm	I-680 (Sunol)	NB 5-6 pm SB (wide variation)
SH 24 (Oakland-Caldecott)	EB 4-5 pm WB 11-12 am	I-880 (Oakland)	NB 5-6 pm SB 5-6 pm
I-80 (Berkeley)	EB 4-5 pm WB (varies)	I-980 (Oakland)	EB 4-5 pm WB 12-1 pm
SR 84 (Dumbarton Bridge Approaches)	EB 4-5 pm WB 4-5 pm	I-238 (Hayward)	NB 12-1 pm SB 12-1 pm
SR 92 (San Mateo Bridge Approaches)	EB 5-6 pm WB 5-6 pm	I-205 (County Line)	EB 4-5 pm WB 11-12 pm
I-580 (Pleasanton)	EB 4-5 pm WB 11am-12pm		

A summary of the final results from the Saturday Level of Service study is presented in the Appendix on Page A-16. Table 15 lists the LOS “D”, “E”, and “F” segments only.

**Table 15
Saturday Traffic Capacity Conditions (Year 2001)
For LOS “D”, “E” and “F” Segments
Alameda County Freeway System**

CMP Route	Segment Limits		No of Lanes	Saturday Peak Volume	Saturday Peak Hour	Segment Capacity	V/C Ratio	Level of Service (LOS)
I-80 - EB	SF County Line	I-580 SB Merge	5	9,040	5pm-6pm	9,000	1.01	F
SR 24 EB	I-580 On-ramp	Fish Ranch Rd	2	5,350	3pm-4pm	8,700	1.23	F*
SR 24 WB	Fish Ranch Rd	I-580 Off-ramp	2	4,850	3pm-4pm	9,400	1.03	F*
SR 24 EB	I-580 On-ramp	Fish Ranch Rd	4	5,350	3pm-4pm	4,350	0.61	A*
SR 24 WB	Fish Ranch Rd	I-580 Off-ramp	4	4,850	3pm-4pm	4,700	0.52	B*
I-80 - EB	I-580/80 Merge	Central	5	8,740	11am-12pm	10,200	0.86	D
I-80 - WB	I-580 Split	SF County Line	5	8,760	5pm-6pm	9,600	0.91	E
I-680 - NB	SR 84	Alcosta	2	4,850	3pm-4pm	5,700	0.85	D
I-880 - NB	SR 92	I-238	4	6,990	4pm-5pm	8,000	0.87	D
I-880 - SB	I-238	Rt 92	4	6,670	3pm-4pm	8,000	0.83	D

* **Note:** On this reversible lane section of the Caldecott Tunnel, the results are LOS “F” when two lanes are used, and LOS “A” and “B” when four lanes are available

7. BICYCLE COUNT DATA

This chapter presents the results of bicycle counts taken by the participating jurisdictions in the County to support the Countywide Bicycle Plan adopted by the ACCMA Board on June 28, 2001. It is the first time that bicycle counts have been coordinated at the County level and that the data has been collected by each jurisdiction at the selected locations. The intention is to collect this data every two years in order to measure the trends in bicycle usage and to provide supporting data for the biennial LOS Monitoring Report the Countywide Bicycle Plan and the Regional Bicycle Plan.

The number of bicyclists was counted at twelve major intersections throughout the County on one day between April 1 and June 6, 2002. The time period selected for counting was from 3:00 P.M. to 6:00 P.M. in order to capture a portion of school trips. (In two cases, as noted in Table 16, the count time period was slightly different, but still in the P.M. peak.) The data was collected in each jurisdiction on a Tuesday, Wednesday, or Thursday.

Table 16 shows the count locations and total number of bicycles counted. The number of bicycle trips counted ranges from 5 bicycle movements at Thornton Avenue and Willow Street in Newark to 405 bicycle trips counted at the intersection of Milvia Street and Hearst Avenue in Berkeley.

Table 16
Alameda County Bicycle Count Data

	Jurisdiction	Location	Time Period of Count	Total Number of Bicycles
1	Alameda	Atlantic Avenue and Webster Street	3-6 p.m.	36
2	Berkeley	Milvia Street and Hearst Avenue	3-6 p.m.	405
3	Emeryville	San Pablo Avenue and 40 th Street	3-6 p.m.	142
4	Fremont	Paseo Padre Parkway and Mowry Avenue	3-6 p.m.	60
5	Hayward	Mission Blvd and Jefferson Street	3-6 p.m.	11
6	Livermore	East Street and Vasco Road	4-6 p.m.	86
7	Newark	Thornton Avenue and Willow Street	3-5 p.m.	5
8	Oakland	Telegraph Avenue and 27 th St	3-6 p.m.	136
9	Piedmont	Grand Avenue and Oakland Avenue	3-6 p.m.	30
10	Pleasanton	Hopyard Road and Stoneridge Drive	3-6 p.m.	32
11	Alameda County	Hesperian and Lewelling Blvd	3-6 p.m.	27
12	Alameda County	Redwood Road and Grove Way	3-6 p.m.	26

Figure 8 shows the intersections where counts were made and the bicycle turning movements at the intersection during the count periods.

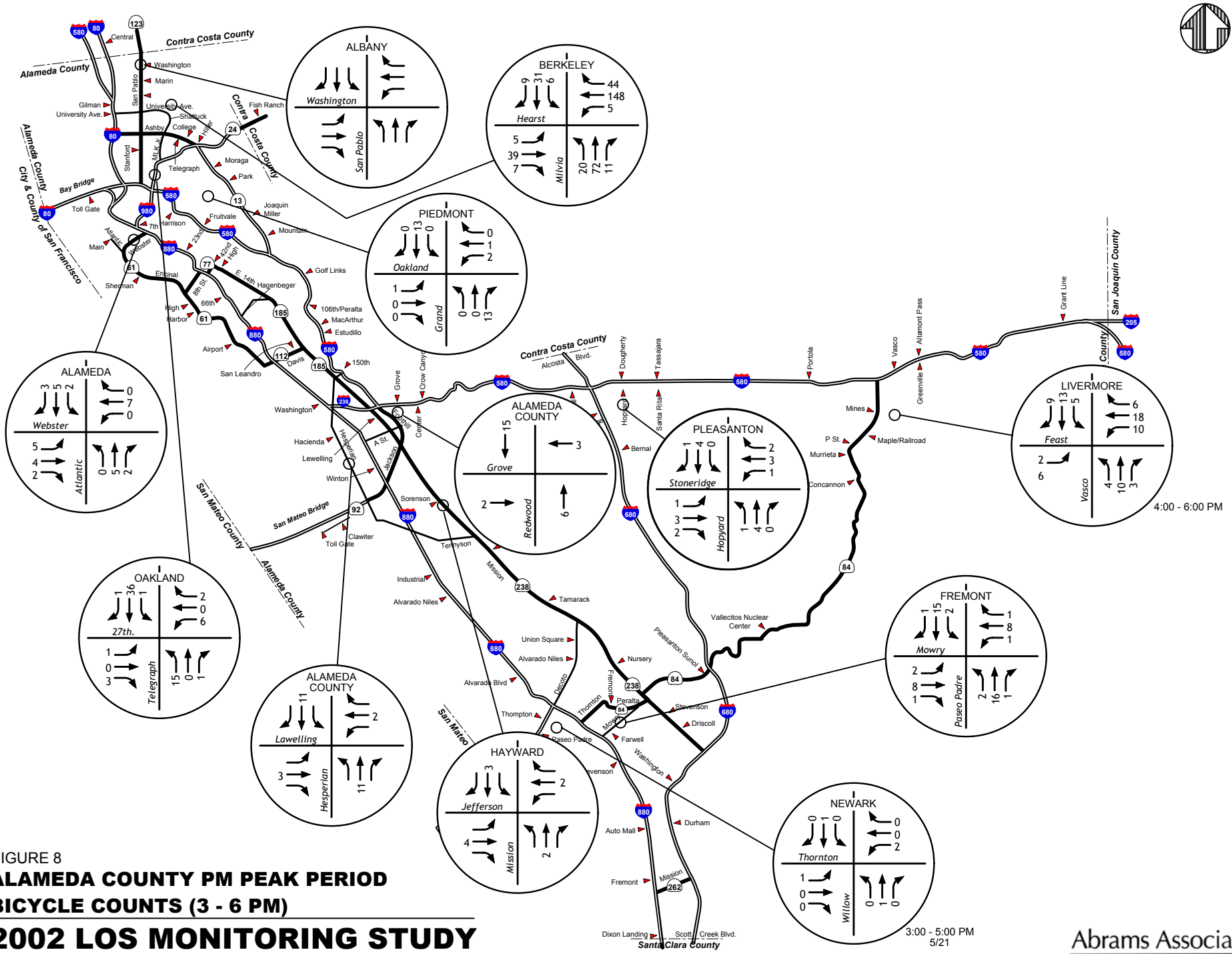


FIGURE 8
ALAMEDA COUNTY PM PEAK PERIOD
BICYCLE COUNTS (3 - 6 PM)
2002 LOS MONITORING STUDY
ALAMEDA COUNTY CMP

8. MONITORING PROGRAM RESULTS

This section summarizes observations about traffic conditions on Alameda County freeways and CMP designated arterials. While overall miles of congestion has changed little since the 2000 survey, congestion on 5 segments has increased resulting in these segments being deficient for the first time.

Deficient Segments

Of the 22 LOS F segments described in Table 4 of the document, twelve are exempt from deficiency plan requirements because they were grandfathered in the 1991 LOS surveys. A final determination of the need for a deficiency plan is still being made on the remaining 10 segments. Of these 10 segments, 5 are deficient for the first time and 5 have been found deficient in previous surveys. The status of any planned improvements for these 10 segments is summarized below.

- There are no planned improvements on the following segments: I-80 eastbound from the Toll Plaza to I-580, I-880 northbound from Decoto Road to Tennyson, and SR 92 eastbound from the San Mateo County Line to the Toll Plaza.
- The I-580 eastbound segments from I-680 to SR 84/1st Street is currently being studied for the implementation of a HOV lane and possibly a rail extension to Livermore.
- The I-238 westbound segment from I-580 to I-880 could be improved by planned improvements on I-238.
- SR 123/San Pablo Avenue northbound from 53rd Avenue to Stanford Avenue could be improved by improvements identified in the San Pablo Corridor Study when they are implemented by the cities in the corridor.
- SR 84 eastbound from Pleasanton-Sunol Road to Vallecitos Nuclear Center entrance could be improved by projects identified in the SR 84 corridor. The proposed improvements include Caltrans SHOPP projects, which are safety related, and the addition of truck climbing lanes on Pigeon Pass.

Observation in General LOS Trends

Despite a downturn in the dot.com industry, the 2002 LOS Study shows that Alameda County overall congestion levels have not changed substantially in the last two years. In addition, growth in Alameda County is expected to continue. The 2000 Census data for Alameda County shows a slight decrease in the number of commuters driving alone (0.4 percent) and an increase in the number of commuters carpooling and taking transit (1.7 percent) since 1990. This indicates incentives to use alternative modes, such as financial incentives and guaranteed ride home coupled with capital improvements to address future needs appear to be keeping pace with growth in Alameda County.

APPENDIX

The following Appendix contains the specific results for each of the CMP segments in Alameda County. The data is arranged as follows:

- P.M. Freeway Segments, Pages A-1 to A-4
- P.M. Arterial Segments, Pages A-5 to A-12
- P.M. Ramps and Special Segments, Page A-13
- A.M. Segments (Freeways only), Page A-14 to A-15
- Freeway Segments, Saturday Peak, Page A-16 to A-17

The complete field data study results, which show the results of each individual travel time run and other study results, are contained in the *Technical Compendium of Travel Time Studies – 2002*, which is on file at the ACCMA.

2002 Level of Service Results
Freeway Segments - PM Peak

CMP Rot	Segment Limits		Jurisdiction	Plan Area	Length (miles)	No of Lanes	2000 ADT	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
I-80 - EB	SF County Line Toll Gate Outlet	Oak	1	2.06	10	278,000			56.3	B	53.9	C
I-80 - EB	Toll Gate Outle	I-580 SB Merge	Oak	1	1.15	10	282,000	93-'00	22.1	• (F) •	14.2	• (F) •
I-80 - EB	I-580/80 Merge	University	Emery - Berk	1	2.80	10	255,000	91-'95, '97-'00	23.0	• (F) •	18.9	• (F) •
I-80 - EB	University	Central	Berk - Alb	1	2.40	10	259,000	91-'92, '96-'97	37.0	E	27.7	• (F) •
I-80 - WB	Central	University	Berk - Alb	1	2.48	10	259,000		43.4	D	46.5	D
I-80 - WB	University	I-580 Split	Emery - Berk	1	2.43	10	255,000	91-'92, 94-'00	9.9	• (F) •	30.6	• (F) •
I-80 - WB	I-580 Split	Toll Plaza	Oak	1	1.20	10	282,000	91-'93, '97-'00	26.3	• (F) •	38.8	E
I-80 - WB	Toll Plaza	SF County	Oak	1	2.00	10	278,000		52.9	C	50.6	C
I-238 - EB	I-880	I-580	Uninc-San L	2	2.28	6	119,000	91-'92, '94, '96-'97	48.9	D	28.4	• (F) •
I-238 - WB	I-580	I-880	Uninc-San L	2	1.60	6	119,000	97-'00	24.4	• (F) •	25.2	• (F) •
I-580 - EB	I-238/Fthl Off	Grove	Unincorp	2	2.88	8	178,000		47.4	D	55.4	B
I-580 - EB	Grove	I-680	Uninc - Pleas	4	7.74	8	164,000		46.7	D	56.0	B
I-580 - EB	I-680	Santa Rita	Plea	4	2.73	8	188,000	98-'00	13.4	• (F) •	10.9	• (F) •
I-580 - EB	Santa Rita	Portola	Unincorp	4	4.47	8	177,000		41.2	D	22.9	• (F) •
I-580 - EB	Portola	SH 84/1st	Liv	4	2.70	8	142,000		30.7	E	23.5	• (F) •
I-580 - EB	SH 84/1st	I-205 (SJ Co) O	Liv - Uninc	4	9.81	8	145,000		49.8	C	47.5	D
I-580 - WB	I-205 (SJ Co)	SH 84/1st St	Liv - Uninc	4	10.00	8	145,000		60.6	A	56.4	B
I-580 - WB	SH 84/1st St	Portola Ave	Liv	4	2.52	8	142,000		47.5	D	49.2	C
I-580 - WB	Portola Ave	Tassajara Rd	Unincorp	4	4.71	8	177,000		65.8	A	63.7	A
I-580 - WB	Tassajara Rd	I-680	Plea	4	2.87	8	188,000		65.1	A	58.2	B
I-580 - WB	I-680	Center	Plea - Uninc	4	8.07	8	164,000		52.7	C	57.0	B
I-580 - WB	Center	I-580/238	Unincorp	2	1.94	8	178,000	'00	24.0	• (F) •	34.1	E
I-580 - SB	I-80	Harrison	Oak	1	2.67	8	261,000	91-'92	64.0	A	41.0	D
I-580 - SB	Harrison	SH 13 Off	Oak	1	5.09	8	197,000		54.5	C	48.2	D
I-580 - SB	SH 13 Off	MacArthur	Oak -SL	1	4.09	8	169,000		70.7	A	61.8	A
I-580 - SB	MacArthur	I-580/238	SL - Hay	2	4.33	8	143,000		64.1	A	57.7	B
I-580 - NB	I-238	Estudillo	Oak - Hay	2	3.95	8	143,000		69.3	A	63.8	A
I-580 - NB	Estudillo	SH 13 Off	Oak -SL	1	4.39	8	169,000		62.6	A	51.9	C
I-580 - NB	SH 13 Off	Fruitvale	Oak	1	2.87	8	186,000		64.8	A	63.2	A
I-580 - NB	Fruitvale	Harrison	Oak	1	2.22	8	197,000		48.0	D	52.6	C
I-580 - NB	Harrison	SH 24 On-ramp	Oak	1	1.16	8	256,000		53.9	C	63.4	A
I-580 - NB	SH-24 On-ramp	I-80/580 Split	Oak	1	0.69	8	261,000		58.7	B	42.8	D

2002 Level of Service Results
Freeway Segments - PM Peak

Segment Limits			Plan Area	Length (miles)	No of Lanes	2000 ADT	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results		
CMP Rot	From:	To:						Jurisdiction	Speed	LOS	Speed	LOS
I-580 - WB	Central	I-80 Jct	Alb	1	0.77	4	78,000	45.7	D	46.9	D	
I-580 - EB	I-80 Jct	Central	Alb	1	1.07	4	78,000	57.6	B	42.3	D	
I-680 - NB	Scott Creek	SR 238	Fre	3	5.98	6	156,000	46.5	D	42.6	D	
I-680 - NB	SR 238	SR 84	Unincorp	3	5.13	6	130,000	70.1	A	49.9	C	
I-680 - NB	SR 84	Bernal Ave	Plea - Uninc	4	4.97	6	129,000	57.8	B	63.4	A	
I-680 - NB	Bernal Ave	I-580	Plea	4	3.22	6	130,000	65.0	A	58.6	B	
I-680 - NB	I-580	Alcosta	Dub	4	1.83	6	144,000	65.7	A	59.1	B	
I-680 - SB	Alcosta	I-580	Dub	4	1.84	6	144,000	61.6	A	57.4	B	
I-680 - SB	I-580	Bernal	Plea	4	3.30	6	130,000	65.4	A	60.3	A	
I-680 - SB	Bernal	SR 84	Unincorp	4	5.12	6	129,000	62.5	A	63.7	A	
I-680 - SB	SR 84	SR 238	Unincorp	3	4.60	6	130,000	60.1	A	61.9	A	
I-680 - SB	SR 238	Scott Creek	Fre	3	6.41	6	156,000	65.6	A	61.0	A	
I-880 - NB	Dix Landing	SR 262/Mission	Fre	3	2.08	8	161,000	91-'92	40.5	E	36.8	E
I-880 - NB	SR 262/Mission	Stevenson	Fre	3	3.98	8	173,000	96	54.6	C	50.6	C
I-880 - NB	Stevenson	Decoto	Fre	3	4.04	8	189,000	96-'98	54.9	C	43.0	D
I-880 - NB	Decoto	Alv-Niles	Fre - Un Cty	3	2.68	8	206,000		35.0	E	24.0	• (F) •
I-880 - NB	Alv-Niles	Tennyson	Un Cty - Hay	3	2.66	8	209,000	00	23.9	• (F) •	19.7	• (F) •
I-880 - NB	Tennyson	SR 92	Hay	2	1.14	8	245,000	91-'92	35.2	E	44.6	D
I-880 - NB	SR 92	A St	Hay	2	1.52	8	261,000	91-'92	50.8	C	44.8	D
I-880 - NB	A St	I-238	Unincorp	2	1.82	8	253,000	94-'95	56.5	B	43.7	D
I-880 - NB	I-238	Hegenberger	Oak -SL	2	5.33	8	221,000		55.6	B	59.9	B
I-880 - NB	Hegenberger	High/42nd	Oak	1	2.47	8	215,000		61.8	A	48.5	D
I-880 - NB	High/42nd	I-980	Oak	1	3.70	8	218,000		49.3	C	48.9	D
I-880 - NB	I-980	I-80/Toll Plaza	Oak	1	3.25	6	111,000		n/a		44.6	D

2002 Level of Service Results
Freeway Segments - PM Peak

CMP Rot	Segment Limits		Jurisdiction	Plan Area	Length (miles)	No of Lanes	2000 ADT	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
I-880 - SB	I-80/Toll Plaza	I-980	Oak	1	3.17	6	111,000		n/a		41.1	D
I-880 - SB	I-980	23rd	Oak	1	2.78	8	218,000		40.3	E	42.8	D
I-880 - SB	23rd St	High/42nd	Oak	1	1.34	8	215,000		51.2	C	43.6	D
I-880 - SB	High/42nd	Hegenberger	Oak	1	2.27	8	215,000		33.5	E	33.3	E
I-880 - SB	Hegenberger	I-238	Oak -SL	1	4.98	8	221,000	91-'92	44.0	D	44.4	D
I-880 - SB	I-238	A St	Unin - Hay	2	2.03	8	253,000	91-'92, '00	24.0	• (F) •	26.7	• (F) •
I-880 - SB	A St	Rt 92	Hay	2	1.81	8	261,000		41.5	D	32.8	E
I-880 - SB	Rt 92	Tennyson	Hay	2	0.96	8	245,000	00	27.6	• (F) •	35.8	E
I-880 - SB	Tennyson	Alv-Niles	Hay - UC	2	2.59	8	209,000		58.8	B	35.5	E
I-880 - SB	Alv-Niles	Decoto	UC - Fre	3	2.74	8	206,000		60.1	A	51.3	C
I-880 - SB	Decoto	Stevenson	Fre	3	4.06	8	189,000		63.8	A	58.3	B
I-880 - SB	Stevenson	SR 262/Mission	Fre	3	4.10	8	173,000		70.5	A	59.0	B
I-880 - SB	SR 262/Mission	Dix Landing(off	Fre	3	1.27	8	161,000	92	41.1	D	34.7	E
I-980 - WB	SR 24 @ 580	I-880	Oak	1	2.27	8	121,000		47.7	D	55.3	B
I-980 - EB	I-880	SR 24 @ 580	Oak	1	2.33	8	121,000	'91	52.1	C	49.5	C
SR 13 - NB	Mountain On	Joa Miller/Linc	Oak	1	2.09	4	58,000		61.0	A	53.5	C
SR 13 - NB	Joa Miller/Linc	Moraga Ave	Oak	1	1.77	4	59,000		61.0	A	57.6	B
SR 13 - NB	Moraga Ave	Hiller (Sig)	Oak	1	1.56	4	68,000		37.6	E	45.3	D
SR 13 - SB	Hiller Sig	Moraga Ave	Oak	1	1.66	4	68,000		57.3	B	54.0	C
SR 13 - SB	Moraga Ave	Joa Miller/Linc	Oak	1	2.03	4	59,000		69.6	A	56.6	B
SR 13 - SB	Joa Miller/Linc	I-580 Ramp	Oak	1	1.74	4	58,000		53.9	C	61.2	A
SR 24 - EB	I-580 On-ramp	Fish Ranch	Oak	1	4.52	8	160,000	91-'97	33.4	E	22.5	• (F) •
SR 24 - WB	Fish Ranch	I-580 Off-ramp	Oak	1	4.47	8	160,000		57.2	B	60.7	A
SR 84 - EB	San M CL	Toll Gate Outlet	Uninc - Hay	2	3.17	6	73,000		56.1	B	54.6	C
SR 84 - EB	Toll Gate Outle	Thornton	Uninc - Hay	2	0.65	6	73,000		52.1	C	48.9	D
SR 84 - EB	Thornton	I-880	Newark	3	2.21	6	90,000		46.1	D	50.2	C
SR 84 - WB	I-880	Toll Gate	Newark	3	2.89	6	73,000		51.0	C	50.0	C
SR 84 - WB	Toll Gate	San M CL	Uninc - Hay	2	3.17	6	73,000		52.7	C	57.9	B

2002 Level of Service Results
Freeway Segments - PM Peak

Segment Limits				Plan	Length	No of	2000	Prior LOS "F"	2000 LOS Results		2002 LOS Results	
CMP Rot	From:	To:	Jurisdiction	Area	(miles)	Lanes	ADT	(Years)	Speed	LOS	Speed	LOS
SR 92 - EB	San M CL	Toll Gate Outlet	Uninc - Hay	2	2.61	6	87,000	97-'00	19.1	• (F) •	25.2	• (F) •
SR 92 - EB	Toll Gate Outle	Clawiter	Uninc - Hay	2	1.76	6	93,000	91-'94, '96-'00	22.1	• (F) •	22.3	• (F) •
SR 92 - EB	Clawiter	I-880	Hay	2	2.10	6	111,000	91-'92, 94-'95, 97-'00	21.2	• (F) •	23.8	• (F) •
SR 92 - WB	I-880	Clawiter	Hay	2	2.01	6	111,000		52.1	C	51.5	C
SR 92 - WB	Clawiter	Toll Gate	Uninc - Hay	2	1.87	6	93,000	91-'92	50.9	C	51.6	C
SR 92 - WB	Toll Gate	San M CL	Uninc - Hay	2	2.61	6	87,000		47.3	D	47.5	D

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
150th St - EB	Hesperian	I-580	SL	0.49	II	2	2		19.3	C	19.6	C
150th St - WB	I-580	Hesperian	SL	0.49	II	2	2		13.6	E	12.9	E
A Street - EB	I-880	Western	Hay	1.08	II	2	2		20.0	C	14.5	D
A Street - EB	Western	SR 238	Hay	0.53	III	2	2		11.4	D	9.3	D
A Street - WB	SR 238	Western	Hay	0.53	III	2	2		25.6	A	11.3	D
A Street - WB	Western	I-880	Hay	1.08	II	2	2		21.6	C	18.4	C
Atlantic - EB	Main	Webster	Ala	0.80	II	1	2		21.9	C	20.1	C
Atlantic - WB	Webster	Main	Ala	0.80	II	1	2		30.3	A	28.4	B
Hegenberger - EB	Edgewater	Baldwin	Oak	0.71	I	1	3		23.7	C	15.4	E
Hegenberger - EB	Baldwin	E 14th	Oak	1.09	I	1	3		33.9	B	24.0	C
Hegenberger - WB	E 14th	Baldwin	Oak	1.09	I	1	3		26.0	C	36.2	A
Hegenberger - WB	Baldwin	Edgewater	Oak	0.71	I	1	3		36.5	A	23.2	C
Hesperian - NB	Tennyson	SH 92 - WB	Hay	0.36	I	2	3		14.7	E	16.6	E
Hesperian - NB	SH 92	A St	Hay	2.19	II	2	3	'92	22.3	C	14.1	D
Hesperian - NB	A St	Hacienda	Unin	0.65	II	2	2		19.6	C	18.6	C
Hesperian - NB	Hacienda	Grant	Unin	0.66	II	2	2		23.2	C	23.4	C
Hesperian - NB	Grant	Llewelling	Unin	0.28	II	2	2	'00	9.2	• (F) •	12.2	E
Hesperian - NB	Llewelling	Springlake	Unin	0.40	II	2	2		18.0	C	26.9	B
Hesperian - NB	Springlake	Fairmont	SL	0.65	II	2	2		14.5	D	13.5	E
Hesperian - NB	Fairmont	14th	SL	0.33	II	2	2		17.5	D	19.9	C
Hesperian - SB	14th	Fairmont	SL	0.31	II	2	2	'91, '95, '97	14.1	D	19.4	C
Hesperian - SB	Fairmont	Springlake	SL	0.65	II	2	2	'91 - '92	21.3	C	16.7	D
Hesperian - SB	Springlake	Llewelling	Unin	0.40	II	2	2	'00	9.8	• (F) •	15.8	D
Hesperian - SB	Llewelling	Grant	Unin	0.28	II	2	2		16.7	D	22.5	C
Hesperian - SB	Grant	Hacienda	Unin	0.66	II	2	2		21.1	C	30.6	A
Hesperian - SB	Hacienda	A St	Unin	0.65	II	2	2		27.2	B	19.1	C
Hesperian - SB	A St	SH 92	Hay	2.19	II	2	3		23.7	C	23.5	C
Hesperian - SB	SH 92 - WB	Tennyson	Hay	0.46	I	2	3		22.8	C	14.8	E

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
Mowry - EB	I-880	Farwell	Fre	0.34	II	3	2	'91 - '92	14.4	D	26.4	B
Mowry - EB	Farwell	SH 84	Fre	2.62	II	3	2		28.0	B	28.6	B
Mowry - WB	SH 84	Farwell	Fre	2.62	II	3	2		23.5	C	25.4	B
Mowry - WB	Farwell	I-880	Fre	0.34	II	3	2		30.0	A	21.3	C
Park/23rd - EB	Encinal	Santa Clara	Ala	0.23	II	1	2		12.9	E	11.1	E
Park/23rd - EB	Santa Clara	Kennedy	Ala	0.67	III	1	2		11.9	D	14.6	C
Park/23rd - EB	Kennedy	E 11th	Ala - Oak	0.50	II	1	2		14.4	D	24.7	B
Park/23rd - WB	E 11th	Kennedy	Ala - Oak	0.45	II	1	2		27.5	B	27.3	B
Park/23rd - WB	Kennedy	Santa Clara	Ala	0.67	III	1	2		13.9	C	9.9	D
Park/23rd - WB	Santa Clara	Encinal	Ala	0.23	II	1	2		10.2	E	16.2	D
MLK Jr Way - NB	SH 24	Adeline	Oak	0.90	II	1	2		19.2	C	18.4	C
Adeline - NB	MLK Jr - South	MLK Jr - North	Berk	0.29	II	1	2		11.0	E	10.1	E
Adeline - NB	MLK Jr - North	Shattuck	Berk	0.63	II	1	2	'95, '00	17.5	D	13.7	E
Shattuck NB	Shattuck	Dwight	Berk	0.32	II	1	2		17.2	D	19.7	C
Shattuck NB	Dwight	University	Berk	0.60	III	1	2		15.7	C	11.9	D
Shattuck SB	University	Dwight	Berk	0.60	III	1	2		8.0	E	12.7	D
Shattuck SB	Dwight	Shattuck	Berk	0.32	II	1	2		27.5	B	26.1	B
Adeline - SB	Shattuck	MLK Jr - North	Berk	0.63	II	1	2		11.9	E	12.7	E
Adeline - SB	MLK Jr - North	MLK Jr - South	Berk	0.29	II	1	2		9.5	• (F) •	13.8	E
MLK Jr Way - SB	Adeline	SH 24	Oak	0.88	II	1	2		17.2	D	16.4	D
Tennyson - EB	Hesperian	I-880	Hay	0.87	I	2	2		17.5	E	16.5	E
Tennyson - EB	I-880 NB	Rt 238	Hay	1.44	II	2	2		21.9	C	16.6	D
Tennyson - WB	Rt 238	I-880	Hay	1.49	II	2	2		20.7	C	15.6	D
Tennyson - WB	I-880	Hesperian	Hay	0.84	I	2	2		22.5	C	19.9	D

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
University - EB	I-80 SB	6th	Berk	0.39	II	1	2	'98	23.1	C	19.7	C
University - EB	6th	San Pablo	Berk	0.31	II	1	2		13.0	E	13.5	E
University - EB	San Pablo	Sacramento	Berk	0.56	II	1	2		15.2	D	19.0	C
University - EB	Sacramento	ML King	Berk	0.48	II	1	2		16.5	D	17.2	D
University - EB	ML King	Shattck Pl	Berk	0.30	III	1	2		10.8	D	17.8	C
University - WB	Shattck Pl	ML King	Berk	0.30	III	1	2		9.3	D	17.6	C
University - WB	ML King	Sacramento	Berk	0.48	II	1	2		21.4	C	18.4	C
University - WB	Sacramento	San Pablo	Berk	0.56	II	1	2		16.0	D	17.5	D
University - WB	San Pablo	6th	Berk	0.31	II	1	2		11.6	E	21.5	C
University - WB	6th	I-80 SB	Berk	0.40	II	1	2		31.1	A	27.6	B
SR 13 Ashby - WB	Hiller	Domingo	Oak - Berk	0.79	II	1	2	'91 - '92	25.4	B	18.8	C
SR 13 Ashby - WB	Domingo	College	Berk	0.49	III	1	1		17.5	C	17.3	C
SR 13 Ashby - WB	College	Telegraph	Berk	0.37	III	1	1		12.9	D	9.4	D
SR 13 Ashby - WB	Telegraph	Shattuck	Berk	0.38	III	1	1		9.0	D	11.3	D
SR 13 Ashby - WB	Shattuck	ML King	Berk	0.25	III	1	1		9.3	D	12.1	D
SR 13 Ashby - WB	ML King	San Pablo	Berk	0.86	III	1	1		18.4	C	14.0	C
SR 13 Ashby - WB	San Pablo	I-80 Ramps	Berk	0.64	II	1	2		18.3	C	19.3	C
SR 13 Ashby - EB	I-80	San Pablo	Berk	0.61	II	1	2		17.1	D	15.5	D
SR 13 Ashby - EB	San Pablo	ML King	Berk	0.86	III	1	1		18.4	C	18.8	C
SR 13 Ashby - EB	ML King	Shattuck	Berk	0.25	III	1	1		9.2	D	10.7	D
SR 13 Ashby - EB	Shattuck	Telegraph	Berk	0.38	III	1	1	'91, '00	20.7	B	25.1	A
SR 13 Ashby - EB	Telegraph	College	Berk	0.37	III	1	1		9.0	D	12.1	D
SR 13 Ashby - EB	College	Domingo	Berk	0.49	III	1	1		6.3	• (F) •	11.0	D
SR 13 Ashby - EB	Domingo	Hiller	Berk - Oak	0.79	II	1	2		23.0	C	21.0	C

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
SR 61 - SB	Atlantic	Cent/Webster	Ala	0.55	III	1	2		15.2	C	14.4	C
SR 61 - SB	Cent/Webster	Sher/Encino	Ala	0.74	II	1	2		22.0	C	23.1	C
SR 61 - SB	Sher/Encino	Park	Ala	1.22	II	1	1		24.4	B	21.3	C
SR 61 - SB	Park	High/Otis	Ala	1.05	II	1	1		19.6	C	22.7	C
SR 61 (Doolittle) - SB	High	Harbor Bay	Ala	0.91	I	1	1		23.2	C	21.1	D
SR 61 - SB	Harbor Bay	Airport Dr	Oak	2.14	I	1	1		38.8	A	43.1	A
SR 61 (Doolittle) - SB	Airport	Davis	Oak - SL	0.95	I	1	2		35.5	A	22.3	C
SR 61 (Doolittle) - NB	Davis	Airport	SL - Oak	0.94	I	2	2		21.5	D	16.4	E
SR 61 - NB	Airport Dr	Harbor Bay	Ala	2.15	I	1	1		38.6	A	36.9	A
SR 61 (Doolittle) - NB	Harbor Bay	High/Otis	Ala	0.91	I	1	1		25.9	C	37.1	A
SR 61 - NB	High/Otis	Park	Ala	1.05	II	1	1		38.3	A	18.2	C
SR 61 - NB	Park/Encnal	Sher/Cent	Ala	1.22	II	1	1		14.0	D	27.3	B
SR 61 - NB	Sher/Cent	Web/Cent	Ala	0.74	II	1	2		19.0	C	17.6	D
SR 61 - NB	Cent/Web	Atlantic	Ala	0.55	III	1	2		16.7	C	12.7	D
SR 77 (42nd) - EB	I-880 NB	E 14th	Oak	0.32	I	1	2		21.9	D	22.1	C
SR 77 (42nd) - WB	E 14 th	I-880 NB	Oak	0.30	I	1	2		31.9	B	17.4	E
Decoto - WB	SH 238/Mission	Union Square	UC	0.85	II	3	2		27.9	B	28.6	B
Decoto - WB	Union Square	Alv-Niles Rd	UC	0.25	II	3	2	'91 - '94, '96, '98, '00	8.2	• (F) •	4.6	• (F) •
Decoto - WB	Alv-Niles Rd	Fremont CL	UC	0.66	II	3	2		26.1	B	24.1	B
Decoto - WB	Fremont CL	I-880 NB (off)	Fre	1.15	II	3	2		27.1	B	18.2	C
Decoto - EB	I-880 NB (off)	Union City CL	Fre	1.15	II	3	2		16.3	D	17.3	D
Decoto - EB	Union City CL	Alv-Niles Rd	UC	0.66	II	3	2		16.7	D	14.5	D
Decoto - EB	Alv-Niles Rd	Union Square	UC	0.25	II	3	2		13.7	E	16.2	D
Decoto - EB	Union Square	SH 238/Mission	UC	0.85	II	3	2		28.9	B	23.9	C
SR 84/Mowry (Fre) - WB SH 238		Peralta	Fre	0.90	I	3			31.8	B	33.4	B
SR 84/Peralta (Fre) - WB Mowry		Fremont	Fre	1.72	I	3			24.6	C	20.8	D
SR 84/Fremont (Fre) - W Peralta		Thornton	Fre	0.33	II	3		'91 - '92, '94	14.4	D	7.4	• (F) •
SR 84/Thornton (Fre) - V Fremont		I-880 SB	Fre	1.34	II	3			26.1	B	28.0	B
SR 84/Thornton (Fre) - E I-880 SB		Fremont	Fre	1.34	II	3			25.0	B	21.2	C
SR 84/Fremont (Fre) - EE Thornton		Peralta	Fre	0.33	II	3			10.6	E	15.9	D
SR 84/Peralta (Fre) - EB Fremont		Mowry	Fre	1.72	I	3			28.1	B	27.4	C
SR 84/Mowry (Fre) - EB Peralta		SH 238	Fre	0.90	I	3		'00	8.4	• (F) •	22.9	C

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
SR 84 (Liv) - SB	I-580	N Mines	Liv	0.79	I	4			26.4	C	28.8	B
SR 84 (Liv) - SB	N Mines	Railroad	Liv	1.35	I	4			27.4	C	30.3	B
SR 84 (Liv) - SB	Railroad	P St	Liv	0.62	III	4			17.4	C	14.7	C
SR 84 (Liv) - SB	P St	4th/Murr	Liv	0.35	II	4			18.3	C	30.8	A
SR 84 (Liv) - SB	4th/Murr	Concannon	Liv	1.04	I	4			26.8	C	29.6	B
SR 84 (Liv) - WB	Concannon	Holmes	Unin-Liv	0.92	I	3			41.4	A	44.5	A
SR 84 (Liv) - EB	Holmes	Concannon	Liv-Unin	0.92	I	4			43.5	A	34.3	B
SR 84 (Liv) - EB	Concannon	4th/Murr	Liv	1.04	I	4			22.8	C	31.8	B
SR 84 (Liv) - EB	4th	P St	Liv	0.35	II	4			17.7	D	22.9	C
SR 84 (Liv) - EB	P St	Railroad	Liv	0.62	III	4			13.0	C	14.3	C
SR 84 (Liv) - EB	Railroad	N Mines	Liv	1.35	I	4			28.9	B	23.4	C
SR 84 (Liv) - EB	N Mines	I-580	Liv	0.79	I	4			33.1	B	29.4	B
SR 84 - EB	SR 238*	Ple-Sunol Rd*	Fre	6.70	Rural 2	3	2		29.6	E	32.4	D
SR 84 - EB	Ple-Sunol Rd*	Vallecitos Ent.*	Unin	2.60	Rural 2	3	2				14.9	• (F) •
SR 84 - EB	Vallecitos Ent.*	Call Box*	Unin	2.31	Rural 2	3	2				38.4	E
SR 84 - EB	Call Box	Holmes	Unin	2.84	Rural 2	3	2		32.0	D	40.5	D
SR 84 - WB	Holmes	Call Box	Unin	2.84	Rural 2	3	2		48.1	A	39.6	B
SR 84 - WB	Call Box*	Vallecitos Ent.*	Unin	2.31	Rural 2	3	2				54.2	C
SR 84 - WB	Vallecitos Ent.*	Ple-Sunol Rd*	Unin	2.28	Rural 2	3	2				42.7	D
SR 84 - WB	Ple-Sunol Rd*	SR 238*	Fre	6.70	Rural 2	3	2		42.8	B	44.3	B
SR 92 - EB	I-880	Mission	Hay	1.58	II	2	3	'91 - '92	14.2	D	13.1	E
SR 92 - WB	Mission	I-880	Hay	1.58	II	2	3		23.2	C	18.5	C
SR 112 (Davis) - EB	Doolittle	I-880	SL	0.97	II	2	2		23.0	C	37.3	A
SR 112 (Davis) - EB	I-880	San Leandro	SL	0.54	II	2	2	'91	18.2	C	11.9	E
SR 112 (Davis) - EB	San Leandro	14th	SL	0.27	III	2	2		12.4	D	12.3	D
SR 112 (Davis) - WB	E 14th	San Leandro	SL	0.28	III	2	2		13.3	C	13.6	C
SR 112 (Davis) - WB	San Leandro	I-880	SL	1.00	II	2	2		22.5	C	31.8	A
SR 112 (Davis) - WB	I-880	Doolittle	SL	0.50	II	2	2		15.5	D	11.7	E

* Segment divided into three new segments in 2002 per The City of Pleasanton's request

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
SR 123 San Pablo - SB	Carlson	Washington	Alb	0.53	II	1	2		33.8	A	19.4	C
SR 123 San Pablo - SB	Washington	Marin	Alb	0.44	III	1	2		14.9	C	23.4	B
SR 123 San Pablo - SB	Marin	Gilman	Alb - Berk	0.47	II	1	2		19.2	C	25.0	B
SR 123 San Pablo - SB	Gilman	University	Berk	0.85	II	1	2		19.5	C	18.8	C
SR 123 San Pablo - SB	University	Allston	Berk	0.20	III	1	2		16.5	C	10.7	D
SR 123 San Pablo - SB	Allston	Ashby	Berk	1.08	II	1	2		13.9	E	25.0	B
SR 123 San Pablo - SB	Ashby	Stanford	Berk	0.81	II	1	2		19.6	C	20.1	C
SR 123 San Pablo - SB	Stanford	53rd	Oak	0.27	II	1	2		19.8	C	24.7	B
SR 123 San Pablo - SB	53rd	Park	Emer	0.35	II	1	2		17.8	D	18.4	C
SR 123 San Pablo - SB	Park	35th	Emer - Oak	0.44	II	1	2	'91	12.6	E	11.6	E
SR 123 San Pablo - NB	35th	Park	Oak - Emer	0.44	II	1	2		20.3	C	13.5	E
SR 123 San Pablo - NB	Park	53rd	Emer	0.35	II	1	2		25.1	B	29.5	B
SR 123 San Pablo - NB	53rd	Stanford	Oak	0.27	II	1	2		15.1	D	9.9	• (F) •
SR 123 San Pablo - NB	Stanford	Ashby	Oak	0.81	II	1	2		15.1	D	26.0	B
SR 123 San Pablo - NB	Ashby	Allston	Berk	1.08	II	1	2		22.0	C	19.7	C
SR 123 San Pablo - NB	Allston	University	Berk	0.20	III	1	2	'98, '00	5.0	• (F) •	11.4	D
SR 123 San Pablo - NB	University	Gilman	Berk	0.85	II	1	2		18.5	C	16.8	D
SR 123 San Pablo - NB	Gilman	Marin	Alb - Berk	0.47	II	1	2		21.0	C	21.5	C
SR 123 San Pablo - NB	Marin	Washington	Alb	0.45	III	1	2		19.8	B	22.1	B
SR 123 San Pablo - NB	Washington	Carlson	Alb	0.53	II	1	2		24.5	B	17.6	D

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
SR 185 (14th) - SB	42nd	Seminary	Oak	1.06	II	1	2		22.7	C	17.6	D
SR 185 (14th) - SB	Seminary	73rd	Oak	0.80	II	1	2		16.2	D	13.7	E
SR 185 (14th) - SB	73rd Ave	98th Ave	Oak	1.39	II	1	2		17.6	D	18.5	C
SR 185 (14th) - SB	98th	Broadmoor	Oak	0.74	II	1	2		24.6	B	25.2	B
SR 185 (14th) - SB	Broadmoor	Davis	SL	0.72	II	2	2		17.6	D	22.1	C
SR 185 (14th) - SB	Davis	San Leandro	SL	1.04	III	2	2		18.7	C	22.5	B
SR 185 (14th) - SB	San L Blvd	Hesperian	SL	0.94	II	2	2		31.2	A	24.9	B
SR 185 (14th) - SB	Hesperian	Bayfair	SL	0.46	II	2	2		12.7	E	14.6	D
SR 185 (14th) - SB	Bayfair	170th	Unin	1.24	II	3	2		25.3	B	24.9	B
SR 185 (14th) - SB	170th	Llewelling	Unin	0.21	II	3	2		20.2	C	20.2	C
SR 185 (14th) - SB	Llewelling	Sunset	Unin	1.02	II	3	2		23.8	C	30.8	A
SR 185 Hayward - SB	Sunset	SR 92/238	Hay	0.85	III	2	2		12.7	D	23.6	B
SR 185 Hayward - NB	SR 92/238	Sunset	Hay	0.85	III	2	2		15.1	C	28.7	A
SR 185 (14th) - NB	Sunset	Llewelling	Unin	1.11	III	3	2		30.5	A	20.2	B
SR 185 (14th) - NB	Llewelling	170th	Unin	0.21	II	3	2		34.3	A	25.6	B
SR 185 (14th) - NB	170th	Bayfair	Unin	1.24	II	3	2		33.2	A	32.0	A
SR 185 (14th) - NB	Bayfair	Hesperian	SL	0.46	II	2	2		23.4	C	20.1	C
SR 185 (14th) - NB	Hesperian	San L Blvd	SL	0.93	II	2	2		27.1	B	29.5	B
SR 185 (14th) - NB	San Leandro	Davis	SL	1.03	III	2	2		17.3	C	18.8	C
SR 185 (14th) - NB	Davis	Broadmoor	SL	0.72	II	2	2		18.1	C	16.3	D
SR 185 (14th) - NB	Broadmoor	98th	Oak	0.74	II	1	2		19.5	C	19.6	C
SR 185 (14th) - NB	98th Ave	73rd Ave	Oak	1.36	II	1	2		17.4	D	18.9	C
SR 185 (14th) - NB	73rd Ave	Seminary	Oak	0.80	II	1	2		17.0	D	14.7	D
SR 185 (14th) - NB	Seminary	42nd	Oak	1.06	II	1	2		20.1	C	21.2	C
SR 238 (Foothill) - NB	Jackson	City Center	Hay	0.62	III	2	3		15.8	C	15.4	C
SR 238 (Foothill) - NB	City Center	I-580	Unin-Hay	0.73	II	3	3		18.2	C	16.8	D
SR 238 (Foothill) - NB	I-580 Ramp	I-580 Merge	Unin	0.71	I	3			50.0	A	51.7	A
SR 238 (Foothill) - SB	I-580	Cstro V Blvd	Unin	0.86	I	3			35.4	A	30.8	B
SR 238 (Foothill) - SB	Cstro V Blvd	City Center	Hay-Unin	1.03	II	2	3		26.5	B	32.6	A
SR 238 (Foothill) - SB	City Center	Jackson	Hay	0.62	III	2	3		14.7	C	14.5	C

2002 Level of Service Results
Arterial Segments - PM Peak Hour

CMP Route	Segment Limits		Jurisdiction	Length (miles)	Arterial Class	Plan Area	No of Lanes	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
SR 238 (Mission) - NB	680 NB Rmp	Stevenson	Fre	2.46	I	3	2	'91 - '92	34.7	B	33.8	B
SR 238 (Mission) - NB	Stevenson	Nursery	Fre	2.57	I	3	2		31.8	B	28.0	B
SR 238 (Mission) - NB	Nursery	Tamarack	UC	2.07	I	3	2		30.5	B	26.3	C
SR 238 (Mission) - NB	Tamarack	Industrial	UC - Hay	1.96	I	3	2		31.5	B	30.8	B
SR 238 (Mission) - NB	Industrial	Sorenson	Hay	1.47	II	2	2		28.6	B	24.2	B
SR 238 (Mission) - NB	Sorenson	Jackson	Hay	1.82	II	2	2		16.7	D	15.2	D
SR 238 (Mission) - SB	Jackson	Sorenson	Hay	1.82	II	2	2		21.8	C	22.1	C
SR 238 (Mission) - SB	Sorenson	Industrial	Hay	1.47	II	2	2		30.4	A	23.8	C
SR 238 (Mission) - SB	Industrial	Tamarack	Hay - UC	1.96	I	2	2		34.5	B	33.5	B
SR 238 (Mission) - SB	Tamarack	Nursery	UC	2.07	I	3	2		30.9	B	26.6	C
SR 238 (Mission) - SB	Nursery	Stevenson	Fre	2.57	I	3	2	'91	31.1	B	31.8	B
SR 238 (Mission) - SB	Stevenson	680 NB Rmp	Fre	2.46	I	3	2		35.8	A	34.3	B
SR 260 (Tubes) - NB	Atlantic	7th/Web	Oak	1.31	I	1	2		34.6	B	35.9	A
SR 260 (Tubes) - SB	7th/Web	Atlantic	Oak	1.31	I	1	2		39.4	A	34.7	B
SR 262 (Mission) - EB	I-880 NB	I-680 NB	Fre	1.32	I	3	2		32.5	B	30.6	B
SR 262 (Mission) - WB	I-680 NB	I-880 SB	Fre	1.11	I	3	2		20.2	D	22.7	C

2002 Level of Service Results
Ramps and Special Segments - PM Peak

CMP Route	Segment Limits		Jurisdiction	Plan Area	Length (miles)	No of Lanes	Free Flow Speed	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
I-80/I-580 Interchange	I-80 SB	I-580 EB	Oak	1	0.30	1	38.0	91-'92, 97-'00	13.5	• (F) •	16.2	• (F) •
I-80/I-580 Interchange	I-580 WB	I-80 NB	Oak	1	0.41	1	40.0	91-'92, '98	40.6	A	32.5	B
SR 24 WB/I-580 WB	SR 24 ON	I-580 OFF	Oak	1	0.69	2	Weaving	95	63.6	A	57.4	A
I-580/SR 24 Interchange	I-580 WB	SR-24 EB	Oak	1	0.51	2	45.0		36.2	B	34.4	C
I-580/SR 24 Interchange	SR-24 WB	I-580 EB	Oak	1	0.74	2	51.0		52.6	A	49.2	A
SR13/SR 24 Interchange	SR-13 NB	SR-24 EB	Oak	1	0.32	1	40.0	92-'00	4.6	• (F) •	6.5	• (F) •
SR13/SR 24 Interchange	SR-24 WB	SR-13 SB	Oak	1	0.16	1	31.0		16.0	E	19.7	D
I-880/I-238 Interchange	I-880 SB	I-238 EB	San L	2	0.74	2	47.0	93-'95, '97	27.3	E	31.0	D
I-880/I-238 Interchange	I-238 WB	I-880 NB	San L	2	0.54	1	54.0		36.3	D	35.2	D
I-880/I-238 Interchange	I-880 NB	I-238 EB	San L	2	0.33	1	32.0		33.0	A	29.4	A
I-880/I-238 Interchange	I-238 WB	I-880 SB	San L	2	0.76	1	53.0		42.9	B	37.6	C
I-580 /I-238 Interchange	I-580 SB	I-238 EB	Hay	2	0.35	1	37.0		28.1	C	31.7	B
I-580 /I-238 Interchange	I-238 WB	I-580 NB	Hay	2	0.32	1	38.0		23.8	D	22.2	E
I-580/I-680 Interchange	I-580 EB	I-680 NB	Pleas	4	0.46	1	35.0		18.6	E	22.4	D
I-580/I-680 Interchange	I-580 EB	I-680 SB	Pleas	4	0.28	1	42.0		27.2	D	29.9	C
I-580/I-680 Interchange	I-680 NB	I-580 EB	Pleas	4	0.68	2	40.0	93	33.1	B	32.5	B
I-580/I-680 Interchange	I-680 NB	I-580 WB	Pleas	4	0.66	1	41.0		46.3	A	44.0	A
I-580/I-680 Interchange	I-580 WB	I-680 NB	Pleas	4	0.43	1	41.0		50.2	A	49.8	A
I-580/I-680 Interchange	I-580 WB	I-680 SB	Pleas	4	0.66	1	39.0		31.3	B	28.2	C
I-580/I-680 Interchange	I-680 SB	I-580 EB	Pleas	4	1.04	2	50.0	92	19.1	E	25.8	E
I-580/I-680 Interchange	I-680 SB	I-580 WB	Pleas	4	0.35	1	41.0		31.9	C	28.5	D
I-880/SR 260 Connection	I-880 SB	SR-260 WB	Oak	1	0.99	1	32.0		17.3	E	21.9	D
I-880/SR 260 Connection	SR-260 EB	I-880 NB	Oak	1	0.36	1	35.0	98	18.3	E	19.8	E

2002 Level of Service Results
Freeway Segments - AM Peak

CMP Route	Segment Limits		Jurisdiction	Plan Area	Length (miles)	No of Lanes	2000 ADT	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
I-80 - WB	Central (On)	University	Alb/Berk	1	2.48	8	259,000	'97, '00	24.0	• (F) •	29.7	• (F) •
I-80 - WB	University	I-80/I-580 Split	Emer/Berk	1	2.43	8	255,000	'97, '00	16.1	• (F) •	33.0	E
I-80 - WB	I-80/I-580 Split	Toll Gate	Oak	1	1.20	8	282,000	'97-'00	4.7	• (F) •	8.8	• (F) •
I-80 - WB	Toll Gate	SF County Line	Oak	1	2.00	8	278,000	'97-'00	11.1	• (F) •	13.2	• (F) •
I-238 - WB	I-580 WB/SR 238 VI-880 NB/SB (Split)		Unin/SL	2	1.70	6	119,000		18.0	• (F) •	22.5	• (F) •
I-580 - WB	I-205 (SJ Co)	SH 84/1st St	Jninc - Liv	4	10.00	8	145,000		n/a		58.6	B
I-580 - WB	SH 84/1st St	Portola Ave	Liv	4	2.52	8	142,000		n/a		47.0	D
I-580 - WB	Portola Ave	Tassajara Rd	Unin	4	4.70	8	177,000		41.9	D	32.4	E
I-580 - WB	Tassajara Rd	I-680	Plea	4	2.87	8	188,000		63.8	A	44.0	D
I-580 - WB	I-680	Center	Plea/ Uninc	4	8.00	8	164,000		51.4	C	52.9	C
I-580 - WB	Center	I-580/238	Unincorp	2	1.94	8	178,000		n/a		15.6	• (F) •
I-580 - NB	I-238	Estudillo	Hay - SL	2	3.95	8	143,000		n/a		56.5	B
I-580 - NB	Estudillo	SH 13 Off	SL - Oak	1	4.39	8	169,000		n/a		55.4	B
I-580 - NB	SH 13 Off	Fruitvale	Oak	1	2.87	8	186,000		n/a		45.5	D
I-580 - NB	Fruitvale	Harrison	Oak	1	2.22	8	197,000		n/a		38.9	E
I-580 - NB	Harrison	SH 24 On-ramp	Oak	1	1.16	8	256,000		n/a		39.9	E
I-580 - NB	SH-24 On-ramp	I-80/580 Split	Oak	1	0.69	8	261,000		n/a		26.7	• (F) •
I-680 - SB	Alcosta	I-580	Dub	4	1.84	6	144,000		57.7	B	63.0	A
I-680 - SB	I-580	Bernal Ave	Plea	4	3.30	6	130,000		64.6	A	63.5	A
I-680 - SB	Bernal Ave	Rt 84 (Niles Canyon)	Unin	4	5.12	6	129,000		56.8	B	46.2	D
I-680 - SB	Rt 84 (Niles Canyon)	Rt 238/Mission	Unin	3	4.60	6	130,000	'97-'00	17.6	• (F) •	28.2	• (F) •
I-680 - SB	SR 238	Scott Creek	Fre	3	6.41	6	156,000		n/a		25.8	• (F) •
I-880 - SB	Marina	A St	Unin/Hay	2	4.44	8	253,000		38.2	E	50.1	C
I-880 - SB	A St	RT 92/Jackson	Hay	2	1.81	8	261,000	'97-'98,'00	15.9	• (F) •	21.9	• (F) •
I-880 - SB	Rt92/Jackson	Tennyson	Hay	2	0.96	8	245,000		31.3	E	42.5	D
I-880 - SB	Tennyson	Alvarado-Niles Rd	Hay/UC	2	2.59	8	209,000	'00	28.8	• (F) •	46.2	D
I-880 - SB	Alv-Niles	Decoto	UC - Fre	3	2.74	8	206,000		n/a		54.0	C
I-880 - SB	Decoto	Stevenson	Fre	3	4.06	8	189,000		n/a		48.0	D
I-880 - SB	Stevenson	SR 262/Mission	Fre	3	4.10	8	173,000		n/a		51.5	C
I-880 - SB	SR 262/Mission	Dixon Landing(off)	Fre	3	1.27	8	161,000	'96-'00	11.4	• (F) •	41.9	D

2002 Level of Service Results
Freeway Segments - AM Peak

CMP Route	Segment Limits		Jurisdiction	Plan Area	Length (miles)	No of Lanes	2000 ADT	Prior LOS "F" (Years)	2000 LOS Results		2002 LOS Results	
	From:	To:							Speed	LOS	Speed	LOS
I-880 - NB	Alvarado-Niles Rd	Tennyson Rd	UC/Hay	2	2.65	8	209,000		32.9	E	31.3	E
I-880 - NB	Tennyson Rd	SR 92/Jackson	Hay	2	1.14	8	245,000		45.9	D	41.4	D
I-880 - NB	SR 92/Jackson	A St	Hay	2	1.52	8	261,000		36.3	E	44.8	D
I-880 - NB	A St	Marina	Unin	2	4.48	8	253,000		57.3	B	55.8	B
I-880 - NB	Marina	Hegenberger	SL - Oak	2	2.67	8	221,000		n/a		44.0	D
I-880 - NB	Hegenberger	High/42nd	Oak	1	2.47	8	215,000		n/a		46.6	D
I-880 - NB	High/42nd	I-980	Oak	1	3.70	8	218,000		42.2	D	43.6	D
I-880 - NB	I-980	I-980/I-80 Merge	Oak	1	3.25	8	111,000		n/a		38.0	E
SR 24 - EB	I-580 On-ramp	Fish Ranch	Oak	1	4.52	8	160,000		n/a		26.5	• (F) •
SR 24 - WB	Fish Ranch	I-580 Off-ramp	Oak	1	4.47	8	160,000		n/a		56.9	B
SR 84 - WB	I-880	Toll Gate	Newark	3	2.89	6	73,000		n/a		7.8	• (F) •
SR 84 - WB	Toll Gate	San M CL	ninc - Hay	2	3.17	6	73,000		n/a		59.4	B
SR 92 - WB	I-880	Clawiter	Hay	2	2.01	6	111,000		n/a		23.1	• (F) •
SR 92 - WB	Clawiter	Toll Gate	ninc - Hay	2	1.87	6	93,000		n/a		9.4	• (F) •
SR 92 - WB	Toll Gate	San M CL	ninc - Hay	2	2.61	6	87,000		n/a		16.7	• (F) •

2002 Level of Service Results
Freeway Segments - Saturday Peak

CMP Route	Segment Limits		Plan	Length	No of	2000	Saturday	Saturday	Segment	V/C	Level of
	From:	To:	Area	(miles)	Lanes	ADT	Peak Volume	Peak Hour	Capacity	Ratio	Service (LOS)
I-80 - EB	SF County Line	I-580 SB Merge	1	3.21	5	282,000	9,040	5pm-6pm	9,000	1.01	F
I-80 - EB	I-580/80 Merge	Central	1	5.20	5	259,000	8,740	11am-12pm	10,200	0.86	D
I-80 - WB	Central	I-580 Split	1	4.91	5	259,000	8,020	11am-12pm	10,200	0.78	C
I-80 - WB	I-580 Split	SF County Line	1	3.20	5	282,000	8,760	5pm-6pm	9,600	0.91	E
I-238 - EB	I-880	I-580	2	2.28	3	119,000	n/a	n/a	5,800	n/a	n/a
I-238 - WB	I-580	I-880	2	1.60	3	119,000	n/a	n/a	5,900	n/a	n/a
I-580 - EB	I-238/Fthl Off	I-680	2	10.62	4	188,000	4,540	4pm-5pm	7,700	0.59	A
I-580 - EB	I-680	I-205 (SJ Co) O	4	19.71	4	177,000	5,320	11am-12pm	8,400	0.63	B
I-580 - WB	I-205 (SJ Co)	I-680	4	20.10	4	177,000	4,250	11am-12pm	8,200	0.52	A
I-580 - WB	I-680	I-580/238	4	10.01	4	188,000	4,200	4pm-5pm	7,900	0.53	A
I-580 - SB	I-80	SH 13 Off	1	7.76	4	261,000	4,470	4pm-5pm	7,700	0.58	A
I-580 - SB	SH 13 Off	I-580/238	1	8.42	4	197,000	5,360	4pm-5pm	8,200	0.65	B
I-580 - NB	I-238	SH 13 Off	2	8.34	4	197,000	4,940	4pm-5pm	8,000	0.62	B
I-580 - NB	SH 13 Off	I-80/580 Split	1	6.94	4	261,000	4,230	4pm-5pm	8,000	0.53	A
I-680 - NB	Scott Creek	SR 84	3	11.11	3	156,000	4,210	4pm-5pm	5,700	0.74	C
I-680 - NB	SR 84	Alcosta	4	10.02	3	144,000	4,850	3pm-4pm	5,700	0.85	D
I-680 - SB	Alcosta	SR 84	4	10.26	3	144,000	4,010	4pm-5pm	5,700	0.7	B
I-680 - SB	SR 84	Scott Creek	3	10.01	3	156,000	3,870	5pm-6pm	5,700	0.68	B
I-880 - NB	Dix Landing	SR 92	3	16.50	4	245,000	5,030	5pm-6pm	8,000	0.63	B
I-880 - NB	SR 92	I-238	2	3.34	4	261,000	6,990	4pm-5pm	8,000	0.87	D
I-880 - NB	I-238	I-80/Toll Plaza	2	14.75	4	221,000	n/a	n/a	8,000	n/a	n/a
I-880 - SB	I-80/Toll Plaza	I-238	1	14.54	3	261,000	n/a	n/a	8,000	n/a	n/a
I-880 - SB	I-238	Rt 92	2	3.84	4	245,000	6,670	3pm-4pm	8,000	0.83	D
I-880 - SB	Rt 92	Dix Landing(ofl	2	15.72	4	245,000	5,660	5pm-6pm	8,000	0.71	C
I-980 - WB	SR 24 @ 580	I-880	1	2.27	4	121,000	n/a	n/a	7,700	n/a	n/a
I-980 - EB	I-880	SR 24 @ 580	1	2.33	4	121,000	4,040	4pm-5pm	7,500	0.54	A

2002 Level of Service Results
Freeway Segments - Saturday Peak

CMP Route	Segment Limits		Plan	Length	No of	2000	Saturday	Saturday	Segment	V/C	Level of
	From:	To:	Area	(miles)	Lanes	ADT	Peak Volume	Peak Hour	Capacity	Ratio	Service (LOS)
SR 13 - NB	Mountain On	Hiller (Sig)	1	5.42	2	68,000	1,740	4pm-5pm	3,200	0.54	A
SR 13 - SB	Hiller Sig	I-580 Ramp	1	5.43	2	68,000	2,420	4pm-5pm	4,000	0.62	B
SR 24 - EB	I-580 On-ramp	Fish Ranch	1	4.52	4	160,000	5,350	3pm-4pm	8,700	0.61	B
SR 24 - WB	Fish Ranch	I-580 Off-ramp	1	4.47	4	160,000	4,850	3pm-4pm	9,400	0.52	A
SR 24 - EB	I-580 On-ramp	Fish Ranch	1	4.52	2	160,000	5,350	3pm-4pm	4,350	1.23	F
SR 24 - WB	Fish Ranch	I-580 Off-ramp	1	4.47	2	160,000	4,850	3pm-4pm	4,700	1.03	F
SR 84 - EB	San M CL	I-880	2	6.03	3	73,000	2,410	4pm-5pm	5,600	0.43	A
SR 84 - WB	I-880	San M CL	2	6.06	3	73,000	2,320	4pm-5pm	5,600	0.42	A
SR 92 - EB	San M CL	I-880	2	6.47	3	111,000	2,640	5pm-6pm	5,600	0.47	A
SR 92 - WB	I-880	San M CL	2	6.49	3	111,000	2,200	5pm-6pm	5,600	0.39	A

Note: On this reversible lane section of the Caldecott Tunnel, the results are LOS "F" when two lanes are used, and LOS "A" and "B" when four lanes are available.